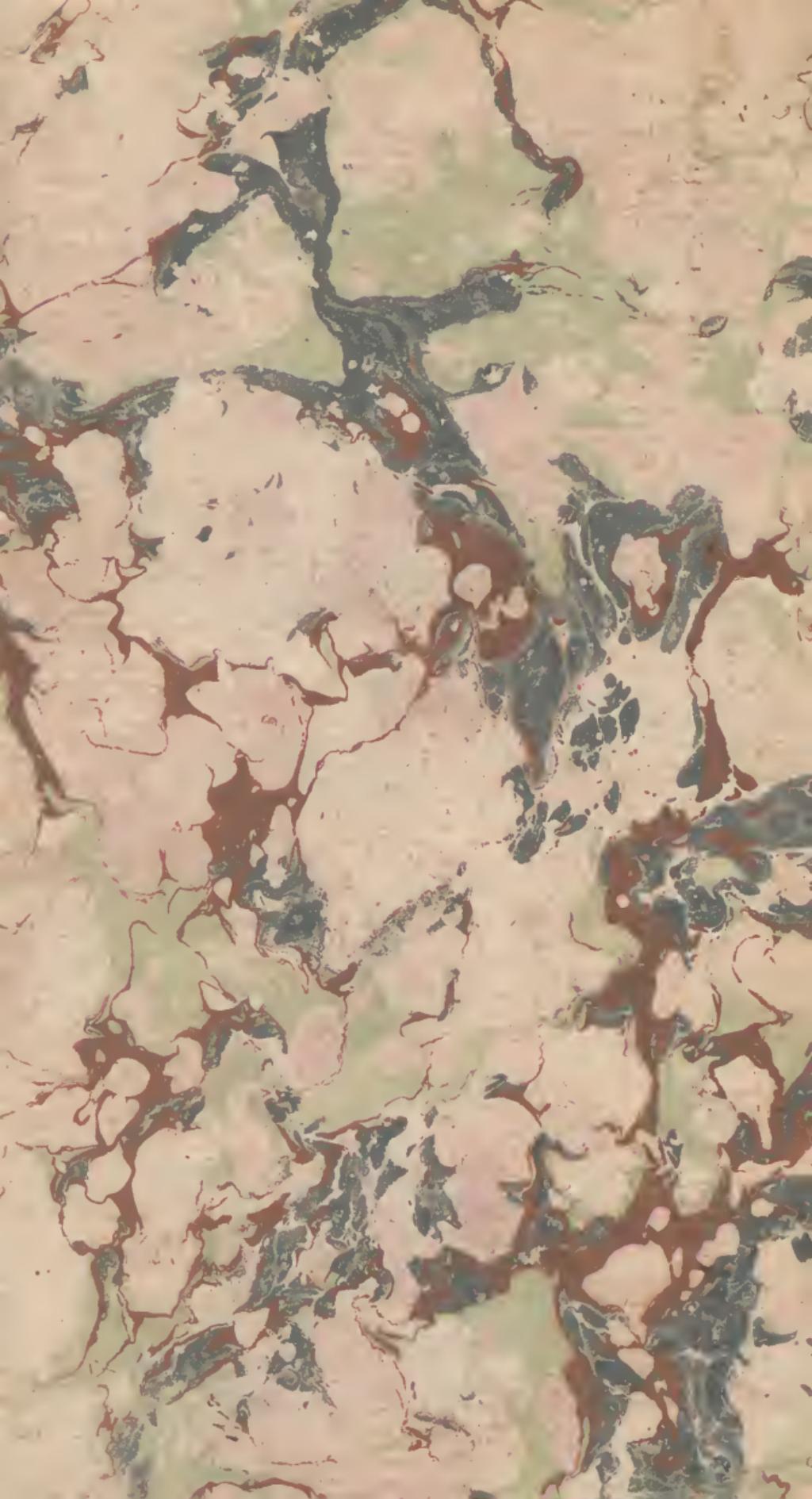


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EXPERIMENTAL ESSAYS

On the VIRTUES of the

Bath and Bristol WATERS.

By ALEX. SUTHERLAND,

OF BATH, M. D.

THE THIRD EDITION,

IMPROVED AND CORRECTED.

Multa enim in modo rei & circumstantiis nova sunt, quæ, in genere, nova non sunt. Qui autem ad observandum adjicit animum, ei etiam, in rebus quæ vulgares videntur, multa observatu digna occurrunt.

BACON *De Augmentis Scientiarum*

L O N D O N :

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M DCC LXXII.



THE
INTRODUCTION
HUMBLY ADDRESSED TO
THE RIGHT HONOURABLE
Hugh, Earl of Northumberland,

Baron Warkworth, and Baronet, Knight of the Most
Noble Order of the Garter, Lord-Lieutenant, and
Governor-General of Ireland, Lord of the Bed-
chamber to His Majesty, Lord-Lieutenant of the
County of Middlesex, &c. &c. &c.

MY LORD,

FROM a survey of that harmony which subsists between the parts of the creation, we may reasonably suppose that every man is accountable for those talents with which God has intrusted

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intrusted him. Of our imperfect endeavours, divine happiness stands in no need. By administering to the wants of society, every man has it in his power to please the Almighty; in this, interest and duty coincide.

To your Lordship, the sovereign director of the general drama has assigned a part truly conspicuous. Your actions uniformly proclaim you the patron of arts, as well as the friend of human nature. By singular munificence, Ormond won the affections of the *Irish*. By faith inviolate, Dorset gained their confidence. By gentle rule, Chesterfield maintained tranquillity. To singular munificence, faith inviolate, and gentle rule, you joined disinterestedness, humanity and affability. Scorning ignoble precedents, to the emoluments of office, you added princely revenues; you enriched the province which you protected. In your Vice-royalty you may truly be said to have reflected honour on the Prince whom you so worthily represent. While *Hibernia* boasts of freedom, your government will stand as a model worthy of imitation.

To me the almighty disposer has assigned a part which has the good of mankind for its object; and therefore intituled to your Lordship's protection. Health is a subject philosophical, as well as medical. Plutarch, Cornaro, Lessius, Bacon, Boyle and Addison, have all treated of the subject of health. In no branch of the healing art, is the subject of health more perhaps concerned than in that of *Thermology*. In diseases acute and chronical, water bids fair to answer every indication. By temperance, exercise, and bathing, the very seeds of diseases are eliminated. *Caeterum rari sunt morbi, sive communes toto corpori, sive particulas ipsas privatim occupantes, quos opportuna Balneorum administratio non persanet*, says the great

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great Baccius. With Fred. Hoffman, the modern prince of mineral-water writers, we may venture to affirm, "Mineral waters come the nearest in nature to what has vainly been searched after, an *Universal Medicine*."

IN fruitless speculations we advance. In solid doctrines we rather degenerate. Among the antients, the doctrine of waters was one of the cardinal branches of medicine. In this kingdom, waters are used only as extreme unction. Baths are rude, uncultivated, and neglected. Our predecessors in practice have left us historical facts faithfully, and accurately related. Scorning the bright example, we seem to content ourselves with implicit belief; we neither improve ourselves, nor inform posterity. The sphere of Bath and Bristol waters seem rather circumscribed. Among the antients, Sailing was another cardinal branch of medicine. In an island, we rarely try the experiment. In the practice of physic, as in other professions, there are fashionable arts, prejudices, and ignorances, in their consequences, equally fatal with errors experimental or practical. In discrediting waters, patients and practitioners mutually conspire. From theoretical notions, waters are damned in the very diseases which they specifically cure. To pass over numberless proofs, Doctor Mead was the patron as well as ornament of that art which he professed. Stranger to the principles which compose Bath waters, or arguing from the relaxing property of simple warm water, (in his *Monita & Praecepta Medica*) he dogmatically lays down an assertion, which practice daily confutes, *Immersiones callidæ paraliticis omnibus nocent*.

PATIENTS headstrong follow the dictates of their own imaginations, or the unseasonable sug-

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gestions of designing meddlers ; for the saving of poultry fees, they too often throw away the expences of long journies, and their lives sometimes to the bargain.

ALARMED by deaths unexpected, or uninformed by histories of cures, distant practitioners naturally suspect mineral waters, condemning physicians who had only the nominal care of patients peevish and refractory. In similiar cases they arm others with general directions ; or cure them by epistolary correspondence. In symptoms variable and dangerous, they boldly counsel draughts of waters fraught with daggers ; or, timidly order quantities so unavailing, that death often anticipates the cure.

PERSUADED that it was my duty to investigate those instruments of health which providence had put into my hands (in the first edition of my *Attempts to revive Antient Medical Doctrines*) I employed the leisure hours of years, in ascertaining the nature and qualities of those fountains at which it was my lot to practise. Your Lordship did me the honour of accompanying me through the ruins of our Roman Baths ; as relicts truly sacred, you deigned to preserve samples of Roman *flues, bricks, and mortar*. Towards the restoration of ruins truly venerable, (remember, My Lord) you was pleased to promise your parliamentary interest. Honoured with such patronage, from an analytical *Essay*, my little volume swelled to a size which far exceeded my first intention. Taught by experience, that where mineral waters failed, sea voyages succeeded, I applied myself to the study of *Sea-Voyages*. Taught by the same experience, that where sea-voyages proved ineffectual, many were restored by local remedies, I pursued the study of *Local Remedies*.

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On the subject of these my favourite pursuits, little assisted by the moderns, I sedulously revolved the records of the antients. Forgetful of my interest, at no small expence, I printed, altered, and printed again. Attached to truth, I frankly exposed the *laedentia* as well as the *juvantia*; on every occasion, I was more free with my own failures, than with those of others. With the ingenuous De Haen, truly may I say *rite, casteque, nostra notavi, fausta quam infausta, tam inutilia quam perfecta; coaevis scribimus et posteris.*

Books may be compared to pictures. To their first sketches, painters are naturally partial; so are authors to their manuscripts. When pictures come to receive the last touch, painters are surprised that they could not discover their blemishes before. While my labours were my own, I was loth to part with proofs which I had gathered with labour. Warmed with my subject, I was more attentive to matter than to manner. By ascertaining the nature and qualities of subjects so interesting, I hoped to lay some claim to the approbation of men concerned for the improvement of the healing art. Secure in the rectitude of my intentions, for the sake of my intentions, I flattered myself that my indiscretions might have been overlooked. Nor was I altogether disappointed. Partial to my failures, the Doctors Glass, Gilchrist, Lind, and Huxham were politely pleased to own that I had carried my researches on the same subjects, far beyond theirs: almost in the same words, they frankly acknowledged my *Attempts* to have been *laborious, learned, useful, and candid.* Pleased with that simplicity of practice which I laboured to restore, too truly, they foresaw my provoking the resentment of those who traffic with the art. For presuming

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to think for himself, in former days, Doctor Guidot called his brother Mayow a *Novel-writer*, judging him the wisest who takes things for granted, and who does not pragmatically contradict the unanimous consent of judicious writers.—When Doctor J. Hen. Schutte was employed in the discovery of the mineral waters of *Cleves*, he loudly complains of the impertinence, and malevolence of men who did their utmost to disappoint a discovery unexceptionably beneficial. For presuming to reform, with my predecessor Mayow, I was deemed a *novel-writer*. By honestly endeavouring to found the virtues of Bath and Bristol waters on the rock of *Observation*, can it be credited, to my astonishment, I found I had provoked the whispers of men whose bread depended on the promulgation of Bath and Bristol waters? Doctor Schutte laboured under the protection of his Prussian Majesty. Truth triumphed, the virtues of the waters of *Cleves* are now universally acknowledged.

FLATTERED on one side, was I obstinately to continue blind to my imperfections? Censured on the other, was I, for fear of censure, to drop the cultivation of doctrines so interesting? Under your Lordship's banner, what has truth to fear? Preferring truth to opinion, I resolved on a middle course. From slander, and friendship, I extracted truth. By narrowly prying into my own faults, I discovered faults which escaped criticism. On mature reflection, I blush not to acknowledge that, with more zeal than prudence, I inveighed against *Vulgar errors*. My first *Attempts* were complex, crude, and unpolished. To men of eminence I relinquish the Herculean labour of reforming the practice of physic. On the uncultivated fields of *Antient Baths, Bath and Bristol Waters*,

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Waters, Sea Voyages, and Local Remedies, be mine the humbler task still to labour. In separate essays it may not perhaps be so difficult to do justice to particular subjects. The ruins of my first edition I resolve to employ as materials for neater edifices.

DISAPPOINTED in foreign materials, I, for the present, pass over the first part of my general work, beginning with the second. In your own person, you have, more than once, experienced the good effects of Bath waters. In the case of your most exemplary son Lord Warkworth, with equal surprize and joy, your Lordship once confessed the power of Bristol waters. To the power of Bristol waters (with leave I proclaim it) the public stands indebted for the preservation of a life which already begins to be an ornament to the public. Your Lordship did me the honour to peruse my manuscript; with the appearances of the *residua* of my experiments, you was pleased to express your satisfaction. In your Lordship's conversation, I always found pleasure mixed with instruction. In the gentleman, you cultivated those arts which adorn the nobleman. Uncommon with the generality of patrons, in researches philosophical and chymical, your judgment is second to none.

MEDICATED WATERS are the workmanship of wise nature; in their principles, they differ so much, that, even in the genus of those vulgarly called *Chalybeates*, it is hardly possible to discover two springs similar in taste, weight, salts, spirits, or quantity. There are chalybeates which bear exportation, such as the *Pyrmont*; and *Pohoun*. There are chalybeates which become feculent, such as those of *Cleve*, or *Geronster*. There are chalybeates highly saturated with iron earth, and

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ill provided with purging salts, such as those of *Tunbridge*, or *Islington*. There are chalybeates which contain a bitter purging salt, such as those of *Scarborough*, *Epsom*, and *Cheltenham*. As are their ingredients, so are their virtues. Those which plentifully suspend iron earth, have the virtues of *crocus martis astringens*; in relaxed bowels they are highly beneficial. Those which imbibe plenty of bitter purging salts are adapted to cachexies, *jaundice*, *dropsy*, &c. Hot waters differ also from one another. These differences arise from the different quantity of that *inflammable principle*, with which they happen to be impregnated.

CHYMICAL EXPERIMENTS discover those differences. But, as the processes of nature surpass our imperfect endeavours, so do the principles of waters escape our nicest inquiries. With Baccius we may truly say “*Sedulo ergo fatebimur humani ingenii conjecturam non pertingere in certas rerum proprietates, quae sunt occultae, et multae in a- quis.*” To supply the deficiencies of chymical experiments, it is my purpose to reconcile the principles of the waters to reason; or, in other words, to confirm their virtues by memorable histories of diseases, or *Cases*.

FACTS are evidences which neither craft nor malice can invalidate. In the ages of simplicity, external and accidental diseases were only regarded. Internal and spontaneous were rare; when they appeared, they were looked upon as the judgments of heaven. At the time of the Trojan war, ulcers and wounds were the employments of Apollo, Chiron, and *Æsculapius*. So little was the practice of physic known, that the sage *Æsculapius* is said to have died of a pleuropneumony; his carcase was avoided because it looked black.

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In after ages, the descendants of this same father of physic extended their views. They dispersed, and erected themselves into societies and schools. There they kept *Registers of Diseases*, of their antecedent causes, symptoms, periods, and consequences, of what had been hurtful, and what had been useful. They collated their observations, and, from various experiments, determined those things and methods which had been found useful in practice. Thus it was that physic became a regular art. To *Tables* of health hung up in the *Temple of Aesculapius*, *Hippocrates* is said to have owed that amazing skill which moderns, with all their improvements, can hardly comprehend. In his books of *Epidemics*, he has set down every observation that occurred in his practice, with this view perhaps, that succeeding physicians, imitating his example in particular diseases, might bring the medical art to some degree of perfection.

To this collection of *Epidemics*, Galen added much.—Of the Arabians we find *Rhasis* a religious admirer of the Greeks. With him we may join *Avenzoar*. The rest, contenting themselves with the invention of the antients, added nothing to the improvement of the art, if we except a few *Nostrums*. By their religion, they were forbidden to dissect human bodies. Thus they were prevented from investigating the latent causes of diseases.

After these, the study of *Observation* was buried in an age of barbarism. *Gentilis*, *Gradius*, *Placentinus*, *Valescus*, and *Gattinaria*, have transmitted a few rare examples, smothered under the rubbish of obscure commentary.

In this third and last age, we have seen the art of physic restored to its primitive simplicity and splendour. In his *Observationes Medicae Rariores*,

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Schenkius has collected the works of some who pursued the road of observation.

Albacus (in his second book) says, *Plurimum arbitror prudenti medico prodeesse, si quamplurima notet exempla quæ sequatur.* *Tulpius, Aretaeus, Heister, Sydenham and Hoffman have improved the art.*

By sweeping away scholastic rubbish, *Boerhaave* has reconciled reason and experience. *Stahl* (in his *Chemical Lectures*) used to charge his pupils not to suffer their fancies to be led away by the subtle reasonings of the Cartesian philosophy. He demonstrated that physic could not be rendered demonstrative, scientific, or beneficial, unless theory was confirmed by observation, or experiment.

Royal Societies are noble institutions. Such was the *Edinburgh Medical-Society*. Such is that of *London*, such our present *Medical Musaeum*; and such are all the rest. In medical observations, the physicians of *Vienna* seem, at present, to excell. Every practitioner has it in his power to add a mite to medical knowledge; every practitioner has not matter for a book.

OBSERVATIONS are, in no branch of medicine, so necessary as in that of mineral waters. Some diseases yield to bathing, some to drinking; some require their united efforts. On the subject of mineral waters, hypothetic reasonings are, at best, precarious. Experience is the touch-stone. In no branch of medicine are observations so much wanted; this has been the complaint of past times, and is of the present.

Doctor Jones published his *Baths Ayde* in the year 1572. "I wish (says he) that patients would leave a note of the commodity received, with an account of their calling and condition, remembering the day of their entering the Bath, and the day of their departure, with the name

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“ name of the infirmity, paying four-pence to
“ the *poors box* for registering the benefit received;
“ until a physician be appointed.”—Dr. Jorden
(in his book of *Hot-Bathing*) expresses himself
thus. “ I will not pretend to reckon up all the
“ benefits which our baths produce; but if we
“ had a *Register* kept of the manifold cures which
“ have been wrought by the use of our baths, it
“ would appear of what great use they are.”—

Dr. Pierce (in his preface) speaks thus: “ It
“ hath been very often desired (and, by many
“ wondered that it was not done, if for no other
“ benefit than that of the city) that a catalogue
“ of eminent cures should every year be printed.”
After assigning reasons for this omission, he pro-
ceeds thus. “ Now, if instead of that, there be
“ a *Manuel* of every one’s price and pocket
“ (which is the chief end of this undertaking)
“ that shall, under the head of every disease, give
“ examples of remarkable cures, it may attain
“ all the ends proposed. Success good or bad,
“ let it honestly be declared; that as the one
“ may supply the place of a *Landmark*, the other
“ may do the office of a *Buoy*.”—In Doctor Sum-
mers’s *Vindication of Warm-Bathing in Palfies*, he
roundly tells the President and Governors of the
Bath Infirmary to whom he addresses his Essay,
“ The public has a right to be informed how far
“ their benefactions have answered, that they
“ may thereby be encouraged to partake of a
“ blessing, the streams of which may flow on
“ themselves.”

In Dr. Swinhoe’s most ingenious *Inaugural Differ-
tation, De Thermarum Antiquitate, Contentis, & Usu*,
we find one caution highly apposite to our subject.
“ Cæterum optime arti medicæ consultum foret, si
“ histeriæ quædam ægrorum, qui fontibus medi-
“ catis

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“ catis usi sunt, fideli calamo conscriptæ fuerint,
“ in quibus notentur tūm singulares horum casus,
“ tum methodus bibendi unicuique magis accom-
“ moda, cæteraque omnia que ad pleniorum hu-
“ jus præstantissimi medicinæ generis cognitio-
“ nem utcunque facere possint.”

Bath-waters are neither *saponaceous* nor *nitrous*. Remarkable cures have, nevertheless, been performed by the concurrence of *Soap* and *Nitre*. Who would be so hardy as to prescribe mineral waters in *Asthma's*, or *Dropsies*? In *Asthma's* and *Dropsies*, the reader will soon be convinced of the utility of Bath-waters.

When wonderful cures are duly ascertained, we are bound to pursue the road of *observation*, even in contradiction to *hypothesis*. Truth is not the less truth because our dull senses cannot comprehend the *modus operandi*. Obstinacy proceeds from a vain opinion that the chymistry of nature ought to bend to our imperfect discoveries. The acid of Bath-water may be assisted by the natural acidity of the stomach, so as to neutralize alkaline medicines. This water manifestly decomposes soap, yet (in *Mrs. Elliot's case*) soap was administered to two or three ounces a day. The cure proceeded much better with soap than without.—In Mr. Lyon's case, *Nitre* was administered to six drachms a day, together with soap.

Bath-water, drank at a distance, has performed cures. Thus encouraged, patients have leaped to the fountain-head with joy. There they have produced untoward symptoms. The same patients have again drank them cold, and have found their cure.

Dr. Nugent communicated a case which unquestionably proves the position. This gentleman practised many years at Bath, now in London.

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don. Of the propriety, or impropriety of Bath Waters, there lives not perhaps a better judge.

“ MRS. COLBORNE, aged 53, of a scorbutic gross habit, was subject to erysipelatous eruptions, with a periodical hæmorrhoidal flux, on the cessation of which, she gradually lost her appetite, complained of rheumatic complaints, with an indolent tumour on the right side of the belly, by the gradual increase of which, she was reduced to a great degree of weakness ; she threw up every thing.

“ She had tried variety of medicines. Bath-water was at last proposed. She drank it in London, and with considerable benefit. This induced her to try it at the fountain, which she did. She was soon convinced of her error. Bath water aggravated every complaint, she was obliged to desist. Little discouraged by this first attempt, she waited till the Bath-water symptoms had abated. She made a second attempt, with the same success. She contented herself with cold Bath-water. She was cured.”

The volatile principle, which, in pulmonic cases, may be prejudicial, flies off, or precipitates. The fixed parts retain their strengthening qualities, may, and are used with great benefit. There is no medicine that is capable of doing mischief, but what may be made to do good, prudently administered.

Dr. Underhill’s *Short account of Hot-well-water Cures* is the only collection that ever was published on that subject. It was printed in the year 1703. In his time, patients who reaped benefit at the *Wells* were wont to leave certificates of the benefit received, signed by their own hands. From this *Autography*, and from the testimonies of residents in Bristol, then cured and alive, has this facetious

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facetious author compiled his short account. On our present subject he expresses himself thus.

“ The great and good God, who formed mankind all of the same clay, afflicts all with like diseases. To show forth his mercy, he freely bestows medicated waters, and puts it in the hearts of Princes, and many of the first Quality, to order their names and diseases, for the sake of the public, to be exposed in print, as we see in Guidot’s System *De Thermis Britannicas*, and Pierce’s *Bath Memoirs*: The like is performed by other Mineral-Water-Writers.

“ There are some notwithstanding who are scrupulous in having their *Cases* published, mistaking their honour for their humour. The good man, *quantum in se*, will not let his fellow-creatures languish for want of putting to his helpful hand; he will rather benefit all, he loves his neighbour as himself.

“ *Stultorum incurata pudor malus ulcer a celat.*”

IN the opinion of the great *Boyle*, The knowledge of mineral waters can never be acquired by any other method than that of analysis confirmed by experience. On the rocks of analysis and experience, I have founded this first specimen of my second edition. By your attachment to the liberal arts, I would have the world to know, that I am not more ambitious of your countenance as a patron, than of your approbation as a judge. You have already been pleased to patronize my first *Attempts*. As a part of the general work, this naturally claims your second protection. Numberless are the authorities to which I own myself indebted. To hold these authorities up in the best light; by my own experience,

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rience, to confirm the observations of others be all my ambition. From your Lordship's candour, well-meaning writers have nothing to dread. What pleasure to revolve histories of cure which had eluded the most judicious art! What satisfaction to be convinced that nature's compositions surpass those of art! With what rapture must the ingenuous distant physician welcome patients whom before he had deliberately doomed to death! How gladly will he, in similar cases, fly to the same cities of refuge! From such, well-meaning writers fear no censure.

To the public, I beg leave to conclude with that apology which the Marquis De Santa Cruz makes for his *Maximes Militaires et Politiques*. *Je suis un architecte qui ai ramassé des matériaux de divers endroits; d'autrui j'ai pris la pierre, et le bois; mais la forme de l'édifice est toute de moi. L'ouvrage des araignées n'est pas plus estimable parce qu'elles produisent leur toile d'elles mêmes, ni le mien n'est pas plus méprisable, parce qu'a l'exemple des Abeilles, je tire le suc de fleurs étrangers.*

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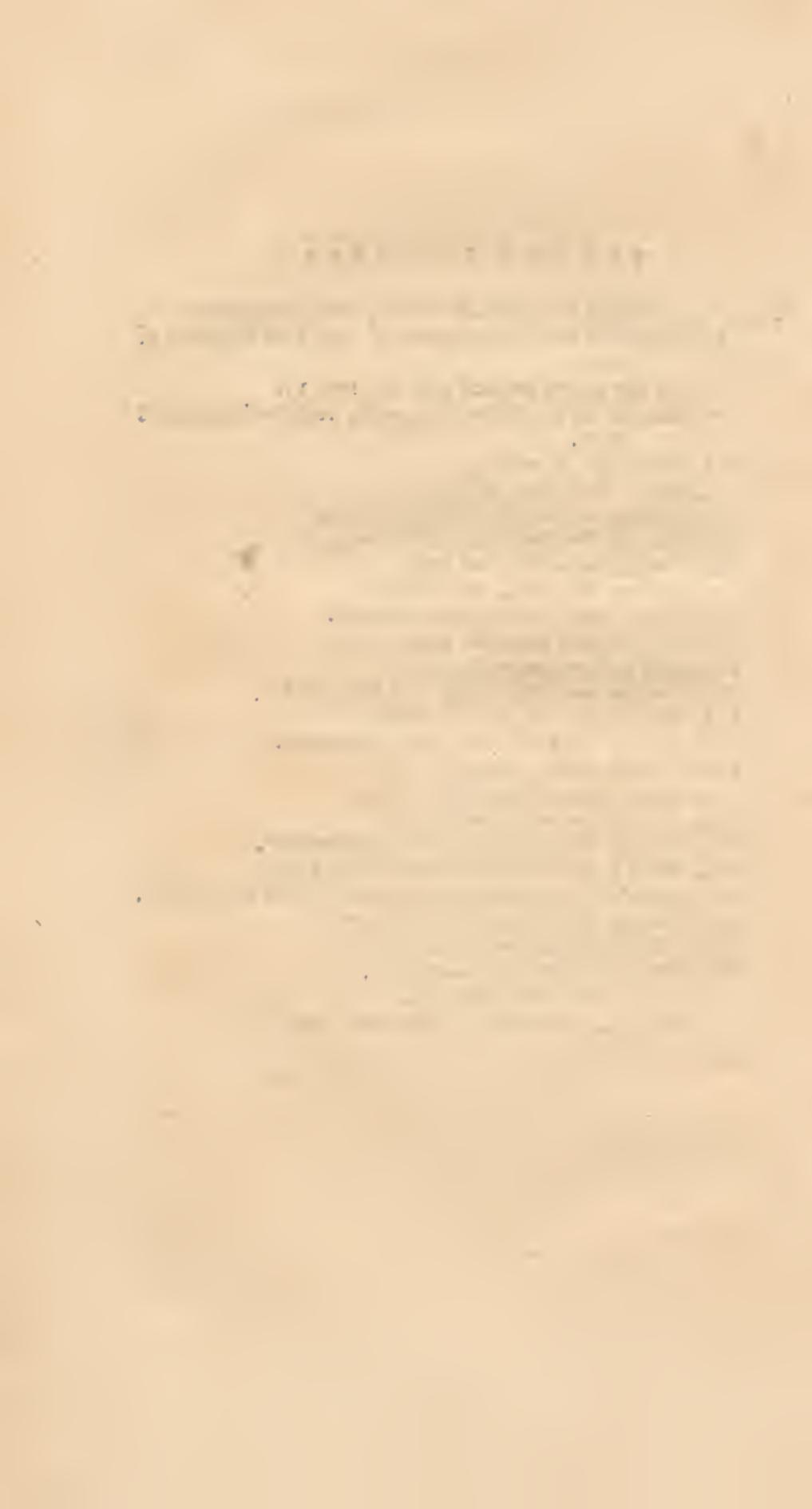
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ERRORS of the PRESS.

Page 12, (marginal note) for *Air volatile*, read *Acid volatile*.
12, (marginal note) for deprived of *Air*, read deprived of *Acid*.
For the second marked page 11, read 13.
13, line 17, for twelve more months, read twelve months more.
23, line 1, for 4, read 3.
27, line 1, for pases, read pals.
30, line 29, for well to, read well as to.
46, line 33, for Parents, read Patients.
51, line 7, for *causis*, read *causis*.
72, line 17, for earth, read earths.
77, line 7, for hebitate, read hebetate.
88, line the last, leave out dem.
110, line 3, leave out will.
line 30, for lubricating, read lubricated.
114, margin, for *Causes*, read *Cases*.
128, line 24, for gout whey, read goat whey.
134, line 26, leave out not.
139, line 5, for occular, read ocular.
154, line 36, for whe, read when.
169, line 14, for momentory, read momentary.
174, line 15, for hot bath, read the hot bath.
230, line 19, for now my purpose, read it is now my purpose.
240, line 31, for timeously, read timely.
283, line 33, for roasted, read broiled.
284, line 8, for proven, read proved.
289, line 3, leave out separately.
line 32, for iomatous, read comatous.



C H A P. I.

OF PRINCIPLES COMMON TO

BATH and BRISTOL WATERS.

FOR health, or amusement, Bath and Bristol Hot-Wells have, time immemorial, been frequented by chymists, naturalists, and philosophers. The number of physicians has kept pace with the increase of patients. Without evidence, Bath and Bristol waters have been accounted sulphureous, alkaline, saponaceous, ferruginous, alumino-
General indolence.us, and every thing but what they really are. The waters have now and then performed surprising cures. Had they been rationally investigated, their sphere must have been farther extended. Critically to examine every author who has attempted to analise Bath and Bristol waters, were labour lost. In disproving imaginary principles, opinions fall to the ground. What avail disquisitions about *nitrous salts*, while we know that nitre never yet existed in waters? What avail argumentations about *salt of vitriol*, while we know that the acid of vitriol is only to be found?

A

There

There are certain tribes of substances calculated for discovering the principles of waters, which are the surer for having been tried, which have held, and will hold, when we and our works come to be forgotten. By analogy and experiment, it is my purpose coolly and candidly to elucidate the truth.

Chemical experiments, their use.

Lord Chancellor Bacon's *Novum Organum Scientiarum* contains a rational scientific method of investigating the natures of things. Chymical experiments are not to be rejected because they cannot amount to mathematical demonstration. This objection bears equally hard on every art whose principles are employed in medicine. Every hypothesis is liable to error; for this reason, man is fallible. The most active principles of waters can never perhaps be subjected to our senses. Antimonial cups communicate an emetic quality to liquors contained, while the containing vessels seem to have parted with no part of their weight; or, at least, none that analysis can discover. Waters, doubtless, are impregnated with the effluvia of mineral substances yet unknown. How can we otherwise account for the wonderful effects of springs, in which nothing but the pure element can be discovered; such as the *Piperine*, or the *Malvern*? "Variae dantur aquae heterogeneis qualitatibus imbutae, quae vulgarem explorandi methodum, a deoque cognitionem nostram fallunt. Referendi huc sunt quidam fontes salutares *Slangenbadenses*, *Piperinae*, *Toplicenses*, in quibus, praeter eximiam levitatem, vulgaria examin nihil fere peregrini et solidi deprehendere possunt. Huc pertinet insignis Becheri observatio de spiritu luti caerulei in scaturiginibus obvij, magnarum

"magnarum plane virium licet insipidus sit." *Fumckerij Consp. Chem. Tab. de Aq. & Becher. Phys subterrani. passim.* Chymistry promises verisimilitude, which, if we modestly pursue, we may avoid the paths of ignorance, rashness, and arrogance. The very pillars of phisiology are founded on chymistry. Digestion, chylification, sanguification, and the secretions, are all nature's chymical processes. By the help of chymistry, we are enabled to separate mixtures the most compound, to exhibit principles, or contents, to the cognizance of sense. Experiments demonstrate what our dull senses can never discover, viz. That water is capable of dissolving and suspending the hardest bodies, and the heaviest metals. Nor is the art of chymistry, particularly that branch of examining waters, so difficult as is commonly imagined. Those who have a mind to catch the weak by their weak sides, may consult Boyle on Colours, Boerhaave's Chymistry, with Hierne's Appendix to his *Acta & Tentamina Medica*. In examining waters, judgement is more requisite than genius. The means of discovering their contents, virtues, and uses, are already in the hands of man; nothing more is wanting to compleat the work, than a prudent scientific manner of using the means; or, to speak more plainly, the art of *Induction*. The bodies which dissolve in waters without altering their transparency, seem reducible to *Air, Spirit, Salts, Earths, Iron, and Sulphur*. Whether (by the help of chymistry) these are to be discovered in Bath and Bristol Waters, is the subject of this and the two following chapters.

I. Of AIR.

To demonstrate the existence of water in water *Air.* were labour lost. The first principle that presents itself in water is *Air*. Air seems to be, more or less, contained in every water.

1. SUBJECTED to the air-pump, Bath and *Experiments.* Bristol waters dart air-bubbles from the bottom of the vessel to the surface.

2. BRISTOL WATER just pumped appears of a whitish colour, owing, doubtless, to the great quantity of bubbles which it contains. As it cools, these bubbles disappear ; nor can this whitish colour, ever after, be restored ; a manifest proof of their having lost something very subtile.

3. SET over a fire, in an open vessel, Bristol Water covers its sides with small air-bubbles. As it increases in heat, these bubbles increase in number and bulk. They mount up to the top with such rapidity, that they put on the appearance of boiling, before the water comes thoroughly to be heated.

4. I filled a quart bottle with Bath water at the hot-bath-pump. Over the neck of the bottle I bound a large bladder, well oiled on the outside. The bladder immediately began to swell, and, pressed upwards filled two-thirds with elastic air, hard as if so much of the bladder had been blown up by the mouth.

5. I, in like manner, bound a bladder over the neck of a large quart bottle of Bristol water brought over to Bath. I placed the bottle before the fire. The air gradually began to distend the bladder, before the neck of the bottle, which was left empty, felt hot ; compressed

pressed upwards, it exhibited an elastic ball, one third of its capacity.—This experiment may always be produced by heat, often without. My authorities are *Chrouet's Connaissance des Eaux minérales d'Aix de chaud Fontaine, et de Spa*, p. 68, & *Shaw's Enquiry into the contents of Scarborough Waters*, p. 137—139.

6. *Statical Essays*, vol. i. p. 181, and vol. ii. p. 267, the ingenious *Hales* has extracted and determined the different quantities of air contained in different waters.

7. To know whether this was air or spirit, Dr. Shaw made the following experiment. He filled an open cylindrical glass with the fresh purgative Scarborough water, and put it under the receiver of an air-pump, then exhausting the air, till it ceased to emit any more, he took the water out, and put a little powder of galls thereto. The water changed its colour, and turned purple, as strongly as before it was set under the receiver. Whence he infers that the mineral spirit did not escape along with the air-bubbles, and consequently that these air-bubbles and the mineral spirit are different principles. This conclusion he confirms.

By the common experiment with galls he found that the chalybeate Scarborough spring contained more of the mineral spirit than the purging. By the experiment of the air-pump, he found that the purging water discharged more air-bubbles than the chalybeate. He filled a quart bottle with the last, to which he fitted a bladder, as before described. The ball of subtle matter was not above one fourth-part so large as in the other. “ This experiment (he infers) therefore, if found constant, intimates, that air

“ and mineral spirit are two things; and that
 “ where the one is largely contained, the other
 “ may be less. It is chiefly on account of
 “ this large portion of air naturally contained
 “ in the purging water, that we rather incline
 “ to make it a principle; for, if no more air
 “ could be discovered here than in common wa-
 “ ter, or the ordinary sorts of purging waters,
 “ such as *Epsom*, *Dulwich*, *Aeton*, &c. there
 “ could be no just foundation for making air a
 “ principle.” *Vide Enquiry into Scarborough Wa-
 “ ters*, part ii. sect. 6. p. 140, 141.

II. Of SPIRIT.

1. BATH and Bristol waters fresh drawn from
 spirit. the pump, manifestly sparkle, and throw
 off a mist, or vapor. After standing in
 the open air, they put off this appearance.

2. BATH and Bristol Waters fresh drawn from
 the pump, seem grateful to the stomach, and
 cheer the spirits. By standing in the open air,
 they lose these properties.

3. BATH and Bristol Waters drank at the
 pump have a sort of intoxicating quality, give an
 alacrity, or occasion a head-ach, drowsiness, or
 ebriety. Drank at a distance, warmed or cold,
 they have no such effects. Hence may we infer
 that both these waters contain a spirit. Nor
 were the ancients unacquainted with this proper-
 ty. In his book *De Architectura*, lib. viii. cap. 3,
 Vitruvius expresses himself thus; *Sunt etiam fon-
 tes uti vino mixti, quemadmodum est unus Paphlago-
 niae, ex quo etiam sine vino potantes fiunt temulenti.*
 —Such are mentioned by Ovid, in his *Meta-
 morphosis*:

— Lynceius

Lyncestius amnis

*Quem quicunque parum moderato gutture traxit,
Haud aliter titubat, quam si mera vina bibisset.
Quodque magis mirum est, sunt qui non corpora
tantum*

*Verum animos etiam valeant mutare liquores.
Cui non audita est obscenae Salmacis undae,
Æthiopesque lacus? quos si quis faucibus hausit,
Aut furit, aut mirum patitur gravitate soporem.*

Lib. i. cap. viii, Valerius Maximus mentions one spring in *Macedonia*, and another in *Agro Calleno*, quo homines inebriantur.—In his *Quæst. Natural. lib. iii. cap. 20*, Seneca assigns this spirit as one of the causes of taste in waters; quotes Ovid, to confirm his opinion in assigning this spirit as the cause of ebriety.—In his *Hist. Natural. lib. ii. cap. 103*, and *lib. xxi. cap. 2*, Pliny makes mention of the Lyncestian water causing drunkenness.—In his *Experiments, and Observations on Malvern Waters*, Dr. Wall makes the like remark; *page 154*.

4. AFTER the departure of air and spirit, one would naturally expect some sensible change; and indeed it seems reasonable to think that the specific gravity of waters were thus increased, as their absolute comes to be diminished. Hoffman used a graduated instrument for ascertaining the weight of different waters. He suspected that the elastic spirit buoyed up the instrument; that therefore the experiment was less to be depended on, the specific gravity increasing as the spirit evaporated.—Dr. Short (in his *History of Mineral Waters*, p. 56. 45. 164. 170. Edit. 1734.) subjected certain medicated waters to the air-

pump, or exposed them in an open vessel. He found their specific gravity thus increased; he assigns the reason. “*Exinde liquet aquam ali-
“ quas particulas amisisse, quae quoniam neque
“ vehiculum ipsum, neque fixa ejus contenta sunt,
“ aér aut spiritus prorsus sunt censenda.*”

Dr. Home (in his *Essay on Dunse Spaw*, p. 160. 163.) bottled up some of the water, corked it close, and, after some time, found it lighter by some grains. He sagaciously assigns the reason; *the escape of the Spirit.*

5. NOR is this opinion of the spirit of waters inconsistent either with reason or *Anal-
From ana-
logy.* Water becomes insipid after having been exposed to the air. The same happens to oils and wines; they lose their strength, virtues, smell, and taste; they become vapid. The same happens to aromatic plants. Nothing proves the text so much as liquor in the state of fermentation, which continually throws up air, together with spirit, manifest to the senses. See *Boerhaave's Elements Chem. Part iii. Process xii. & xiii.*

6. WHAT laws this spirit is subjected to, seems still to remain a secret. Hoffman thinks *Spirit its
laws.* the *Thermae* are sooner deprived of their spirit than the *Acidulae*. The author seems not to have sufficiently distinguished between air and spirit; nay, he seems to have confounded the one with the other, under the common name of spirit. Heat certainly rarifies and dissipates air; air escapes without spirit, and spirit escapes without air, as we have seen.

7. WHAT sort of spirit this may be, or in what form it exists in waters, we are now to *Spirit its na-
ture.* inquire. Naturalists in general, maintain that the spirit of waters consists of

iron or *oker*, minutely subtilized. When they come to explain its manner of existence, they differ. As (under the head of *Air*) we have fully explained, some are of opinion that this metal is divided into minute particles, and suspended by the means of a certain *Acid*, which, as they say, is the proper menstruum of metals. This seems to be Hoffman's opinion; nor is he clear on the head; he speaks of an "aethereo quodam valde mobili, ac subtili fluido, spiritu universali, fonte & causa omnis spirituascentiae, sedem suam, vim, atque virtutem maxime collocatam habente in sulphure, substantia valde tenui, fluida, admodumque elastica, et volatili, cum universali mineralium sulphureo ente combinata, omnesque terrarum tractus pervagante, anima quasi mineralium, variarumque mutationum, & effectuum qui in promptuario subterraneo contingunt, causa." Hoffman. *Element. Aquar. Mineral.* recte *djudicand.* & *examinand.*

§. 8. 16. 18. *alibique passim.* According to this opinion, the spirit of water is no more nor less than a *volatile vitriol*. Those who contend for this doctrine, maintain that as this subtile acid flies off, it carries along with it some particles of iron, which it suspends in solution, that is precipitates, or leaves others behind in form of an ochraceous martial-like matter, as in the experiment mentioned with the powder of galls. Astringents are said to absorb or blunt the *acidum solvens*, by which the particles of iron once dissolved now precipitate; hence change of colour. Nor can this be supposed to be owing to any volatility of dissolved metal; for, let but a vitriolic acid be added to any ferruginous water, that (by

*Confis. of
metal dissoln-
ed by an acid.*

the escape of the acids) has become effete, the gall-tinging quality is forthwith restored.

That there exists a certain *Universal Vitriolico-sulphureous Acid*, which pervades every thing, and

Universal Vitriolic acid. which (by dissolving iron) constitutes the spirit of mineral waters, from positive proofs we learn.—“ Take an al-

“ kaline salt, expose it to the air in a place where neither damps, vapors, nor sun can approach, it will be converted into a *Tartarus Vitriolatus*.”—Mineral fumes are inflammable. Collected into bladders, they may be carried to any distance. Opened near a candle, they catch fire. When ore is poor, miners shut up this vapor, that (by being imbibed by the phlogiston) it may enrich the metals, heighten their splendour, and make them malleable. Mineral fumes contain a portion of the phlogiston ; the more they are impregnated with this inflammable principle, the more volatile, powerful, and penetrating they are. Dr. *Teichmeyer*, professor of physic in the university of *Jena*, relates a memorable instance of a chalybeate spaw, in the Lordship of *Cracow*, a manifest proof of our text. This spaw was, not long ago, set on fire by lightning, which occasioned no small damage to the adjoining forests, and was with great difficulty extinguished. It is remarkable, that this fountain may be kindled at any time by the means of a candle. But, it is as remarkable, that this water, removed from the well, cannot be set on fire. This author adds, that he could relate several methods by which the inflammable principle of mineral waters might be made patent to the senses. “ When (continues he) in the manner aforesaid, medicinal waters exist, then the acid becomes invigorated by the phlogiston contained in the mineral fumes,

“ it

“ it dissolves the finest parts of the *Iron Earth*,
 “ which solution is, at the same time, attracted
 “ by this *principium inflammabile*, and incorporat-
 “ ed with the water concrete.”

8. These fumes cannot be said to be the products of fire, because, when they meet with fire, they burn. Air is the agent that constitutes, moves, and disperses these fumes thro' the bowels of the earth. This appears by that affection, or readiness with which it unites with the external air.

9. THAT vapors, air, or fumes are necessary adjuncts in the composition of mineral waters, we cannot doubt. Hoffman quotes a modern instance from Lic. Andrea. A chalybeate well in the *Dukedom of Wirtenberg* all of a sudden lost its virtue and efficacy. The reason of this change was found to be owing to the digging of stone-cutters, which accidentally broke through a cavity of the rock, out of which issued a strong mineral fume. The cavity was immediately ordered to be carefully closed up, the well recovered its pristine qualities. See Dr. Turner's *Appendix to his Herbal*, printed at Coln, page 4. Dr. Seippius has recorded a similar account in his *History of the Pyrmont Waters*, page 48.

This vapor is of an *acid* nature, none other than that *Acidum universale*, or *Vitrioline acid*, which has its birth in the bowels of the earth, and not in the ocean, as *Stahl* and *Newman* have proved by experiments too long to be here recited.

THAT the *acid* of sea salt owes its production to the *vitrioline acid*, we know by the trite experiment. “ Smelt common salt with the simplest *phlogiston*, destitute of salt or acid, then may some brimstone, and even a little vitriol, be produced.”

10. THAT this acid is of a subtile volatile nature we cannot doubt, if we allow ourselves to be *Air volatile.* guided only by our senses. It impregnates the air, so that it proves offensive to some asthmatics. It corrodes the iron-works in and about the baths. Copper rings have, for this reason, been bequeathed for the use of the bathers to hold by, as may be seen by the inscriptions therereon recorded.

11. As this acid vapor flies off, the water becomes turbid, so that the bottom of the baths can *Deprived of air waters become seculent.* hardly be discovered, at the depth of two or three feet. The earthy parts which were before suspended by means of this mineral acid spirit joined to the natural heat, now preponderate, and adhere to the sides of the glasses, and to the walls of the baths, in the form of a pale ochrous earth. In the closest and quickest corking, this vapour so far escapes, that some precipitation is formed by the time that the water cools.

Such chalybeate waters lose their texture as soon as they come to be exposed to the air. They are unfit for exportation; at a distance they are nevertheless friendly to many constitutions. The iron earth is the matrix in which the vitrioline acid is generated; yet it is well known that neither all iron minerals, nor the same, at all times, are provided with this acid; for so, all common waters would be chalybeates, because there are hardly any which have not, in some part of their passage, a communication with iron ore. When a water meets with an iron ore vein that contains a portion of the acid vapour, this vapour is concentrated with the water; the chalybeate spaw becomes complete. When it meets with too great a quantity of the acid, it is useless or noxious.

When

When the air meets with that *Sublimate* which Basil Valentine calls the *seed of metal*, and which Linden calls the *metallic nutriment*, which exists in a soft state like the *Butter of Antimony*, and that subsists in quantity, then this matter is brought by the *acid* in the air into agitation, by which it receives additional substances. These fumes arise, in some places, more abundantly than in others.

12. Dr. Teichmeyer relates an experiment that proves the great power of the *Air* and the *Acid* therein contained. "He exposed filings of *Iron* to the open air, rain, ^{Air and acid} snow, sun, and moon-shine. In a ^{their joint powers.} year's time, these filings were reduced to a *Crocus*, which he washed and laevigated. This he exposed for twelve more months. Then he put it into a *Retort*, and distilled it gradually through all the degrees of fire. In the neck of the retort, he discovered a black greasy stinking *materies viscosa, et quasi butyrosa*, in which was contained a good portion of *Quicksilver*." "This experiment (says Linden) which I could corroborate with many instances, evidently proves that the *Air* has power with the primogenial *Acid* therein contained, without any other addition, to open the iron, so that it may yield its mercurial contents."

13. THIS acid proceeds from the *Pyrite*, which disunited composes the *Bath-sand*; the *phlogiston* or inflammable principle having escaped. The *phlogiston* thus fled, the acid of the sulphur forms an union with the metallic parts of the pyrite. This constitutes the chalybeate principle.

14. It is well known that acids dissolve iron. Alkalies and absorbents precipitate iron. Chalybeate waters consist of iron dissolved in some kind of acid. Galls and astringent vegetables act as absorbents, and cause a precipitation, in colour, from different shades of purple or blue to black, according to the nature of the acid in which the iron is dissolved, and the proportion of the saturation, or strength of the solution. The stronger the solution of the metal, the more of the astringent will be required, and the deeper the colour will be struck, and *e. c.* This knowledge accounts for the mystery of *dying*.

Chalybeate waters consist of iron dissolved in an acid.

15. EXPERIENCE tells us that volatile and fixed alkalies attract acids which before kept earths or metals in solution. The metallic or *Experiments.* earthly parts are precipitated, and a neutral salt is produced which determines the nature of the acid.

SPIRIT of hartshorn, or Sal-ammoniac, dropped into a glass of Bath-water hot, causes an ebullition and a milkiness with a yellowish hue which gives a light precipitate of the same cast, and throws up an earthy pellicle. The like effect is wrought in the water cold and well corked, though more slowly, less sensibly, and more whitish.

THE acid saturated with the volatile, or fixed alkali, gives Glauber's secret *Sal-ammoniac* in the one, and *Vitriolated-tartar* by the other, which proves the acid to be *vitriolic*.

HENCE the absurdity of prescribing *volatile-alkaline salts, spirits, soap, milk, &c.* with waters *Inference.* hard, in the strictest sense. Bath-waters are utterly unfit for domestic purposes. They thicken, strengthen and harden, instead

stead of *resolving* or *relaxing*, as theorists ignorant-
ly suppose.

ALL the simple as well as fermented vegetable acids mix naturally and easily with Bath-waters. Distill'd vinegar causes no change of colour, or other alteration. The mineral acids, except in a concentrated state, or when the vitriolic is added in such a quantity as to excite more heat, mix kindly.

16. To this doctrine of *Acids*, the trite expe-
riment with *Syrup of violets* generally used to prove
the existence of an alkali may seem
repugnant. It must be confessed that *Objection*.
this syrup turns the waters to a *sea-green*, and in
eight hours after to a *bright grass-green*.

17. THIS is an appearance that overbears those
who deny the existence of an *alkali* in chalybeate
waters. And, to say the truth, this has perplexed
learned and ingenious men, who, by not consider-
ing the matter deeply, yielded up the point to
those who maintained an *alkali*. Let us harken
to *Linden*, Page 114, he says, " This
" mistake arises from not properly dif- *Answered.*
" tinguishing the differences in matter. Iron Vi-
" triol has such a green colour as the syrup of
" violets assumes when mixed with chalybeate
" waters, yet there can be no man so ignorant as
" to imagine that this proceeds from an alkali,
" as the acid predominates so much in the com-
" pound.

" Verdigrease is perfectly green, manufac-
" tured with vinegar and copper. I know no
" alkali that is necessary to this; the copper ap-
" pears in blue crystals when dissolved and cry-
" stallized.

" Pour *Aqua fortis* on *Iron ore*, it becomes in-
" stantly green. Supposing even an alkali in the
" iron

“ iron ore, the green colour cannot be owing to
 “ that ; because the acid is predominant, and
 “ were there alkali enough in the ore to occasion
 “ this green colour, it would discover itself by
 “ an effervescence. at.

“ The solution of perfect iron yields a *green*
 “ colour as soon as it is dissolved by acids. Thus,
 “ we see by how many various ways green co-
 “ lours may be produced ; therefore may we con-
 “ clude that the green colour in these aquatic
 “ mixtures is essentially inherent in the *Iron ore*,
 “ without assistance of alkalies, syrup of violets,
 “ or any thing of the like nature.

“ Whence is it then that this green colour is
 “ produced ?

“ Syrup of violets contains an iron earth ; from
 “ it may be produced an iron earth by art.

“ The acid in the chalybeate water is checked
 “ by the mucilage of the iron ore, which is pro-
 “ bably the true reason why the water preserves
 “ its crystalline purity unmixed.

“ Syrup of violets sets acids and alkalies at li-
 “ berty. It acts only naturally when it sets the
 “ acid free from the *mucilagium ferri* ; the more
 “ it subsides, the stronger the green colour ap-
 “ pears ; the acid works naturally on the iron
 “ earth dissolved into atoms most minute. This
 “ is the real cause. For if this green colour of
 “ the syrup was owing to an alkaline quality of
 “ the waters, that share of alkali requisite to
 “ produce it would constitute such a dispropor-
 “ tioned ingredient that they would be as caustic
 “ as *Soap-lees*, which is by no means the case.”

BATH WATER curdles milk, as every nurse
Bath water knows. Powerful, nevertheless, as this
curdles milk. Acid appears to be, it does not alter the
 colour of the juice of *Turnsol*, the *Heliotropum tri-*
coccum

coccum of C. Bauhinus.—Aken Waters recover spots made in paper by *Acids*. So must Bath Water, had it (like the former) contained an *Alkali*.

BRISTOL WATER, as it boils, loses its pellucidity, and deposits an earthy chalky-like matter on the bottom and sides of the vessel.

Thus it comes to be robbed of its mineral acid. It now becomes soft, fit for domestic purposes, of mixing with soap, washing, brewing, &c. That Bristol Water contains an *acid*, and that this acid is of a volatile nature, the following experiments evince.

1. A glass of Bristol Water poured on a few grains of *Sal Armoniac*, dissolved it immediately with a sensible effervescence. *Experiments.*

2. Spir. *Sal Armoniac* with a fixed alkali produced the same effect.

3. Solution of *Sal Tartar* produces the same effervescence; but gives the liquor a milkiness which precipitates a whitish light earthy substance.

4. Solution of *Soap* curdles and makes the water turbid.

5. The same substances poured into common water distilled, produced no sensible change.

6. In different glasses of common water distilled, were dropped *Spir. Vitrioli*; in others other mineral acids. To these were added volatile alkaline salt, volatile alkaline spirit, fixed alkaline salt and solution of soap. The same appearances arose as when these were first added to the Bristol Water.

HENCE may we conclude, That these waters do contain an *Acid*. By means of this *acid* it is that (in the two first experiments) the effervescence is produced. In the third *Corollaries.* the additional circumstance of the *milkiness* arises from

from the fixed alkaline solution attacking the acid of the waters more strongly than did the calcareous earth, by means of which it is no longer soluble, but becomes cognizable in form of a white precipitate, which was in a saline state while united with the acid, and so soluble in water.

In the fourth, the *Soap* becomes decomposed, the *Oil* swims on the top, while the *Acid* and *Alkali* lay hold of one another.

If these waters are kept but a day, corked never so close; or, if they are boiled, and then these experiments made, neither the effervescence nor the decomposition will appear. The miltness and the precipitate will insue, because the waters are robbed of their power of dissolving earthy substances.

HENCE it is also manifest, That the *Acid* of these waters is of a *volatile* nature.

7. To determine the nature of this acid, let us drop a solution of *Silver in spirit of nitre*. The mixture puts on the appearance of milky, and deposits a white precipitate.

8. In a glass of water pour a solution of *Lead* in the same spirit, the same phenomena appear.

FROM these trials it is demonstrable that the alkaline basis of *Sea-salt* is contained in these waters; for (by the union thereof with *Corollary.* the nitrous acid) an *Aqua-regia* is formed which dissolves gold, but touches not silver, nor lead. In consequence of which the precipitation insues.

9. Pour a solution of *Quicksilver in spirit of nitre* into a glass of water, it grows turbid and deposits a yellow precipitate, which confirms the foregoing experiment.

10. To solutions of Bristol Water turbid or precipitated by *Spir. Sal. Armon. Sal. Tartar, Calx viv. &c.* pour *Oil of Vitriol*, the transparency is immediately restored.

11. *Ol. Tartar per deliq.* added to that which contains oil of vitriol, a great effervescence insues, and the heat goes off but slowly.

12. Solution of silver was added to the water. To this was added *Soap-lee*, which caused a black precipitate by standing, which could not be disturbed by *Spir. Sal. Armoniac*.

HENCE we may infer that this water contains a great share of *phlogiston*, with vitriolic spirit medicated and absorbed by a *calcarious earth*. *Corollary.*

13. To a glass of water, *Scarlet dye* was added. A small precipitate insued, the upper part remained of a fine scarlet colour. As soon as *Spir. Sal. Armoniac* was added, it struck an opaque purple colour.

HENCE may we conclude that this water is (in its natural state) neutral in all respects, rather inclinable to the *vitriolic acid*; which is the reason that it continues its *scarlet colour*; but, as soon as an urinous spirit is added, then the *Cochineal* loses its scarlet colour, and turns to purple. *Corollary.*

14. The water was also tried with *blue dye*, and *pompadore*, without any alteration. This confirms the last experiment.

FROM the sum and substance of the foregoing experiments, we conclude, that the whole nature and texture of Bristol water (not even its warmth excepted) depends on the *vitriolic acid*.

THERE are others who maintain, That the spirit of waters consists of ferreous particles dissolved without the interposition *Spirit said to consist of iron without the acid.*

terposition of an acid. In support of this opinion these urge, That a sort of ink may be prepared, by infusing pure iron in simple water, saturated with the powder of galls. Nor does Shaw disown the fact, *See his Enquiry into Scarborough Waters*, p. 151—158.—In infusions of filings of iron with water distilled, there appear certain phenomena, not dissimilar to those which may be seen in mineral waters. *See Home's Essay on Dunse-spaw*, p. 157, 158. The subtile particles escape in form of spirit, the heavier precipitate as in solutions of iron by acids. If so, why (say they) may not iron in like manner, be supposed to be dissolved in mineral springs?

In his *Essay on Dunse-spaw*, p. 60. 62. 157. 160. Dr. Home observes, that some of the ferreous particles settle on the surface, in the form of a thin pellicle, not unlike to that which is commonly observed on the surface of lime-water.— In Dr. Whytt's ingenious *Essay on Lime-water*, p. 62, 63, & 74, 75. he has experimentally disproved the existence of an acid in Lime-water.— Shaw's Experiment with astringents seems no less to favour this opinion than the other. If the powder of galls, tea-leaves, or any other astringent precipitate iron, by absorbing the acid, may not the same phenomena be expected from alkaline substances? From such mixtures, such appearances never happen. They therefore conclude, that this effect of galls ought rather to be attributed to that astringent property common to such substances, by which they attract the particles of iron, and thus tinge water blue, purple, or black, by which the heavier particles also fall to the bottom. This opinion they think confirmed by the following experiment. “ In his *Experiments and Observations on Chalybeate Waters*,

“ Dr.

“ Dr. Hales observes, That many natural waters, after they had deposited their oker, and afterwards suffered such a degree of corruption as to be thereby resolved (by the help of powder of *Galls*) put on as intense a colour, as if they had been just taken up at the fountain-head.” Hence they infer, that the spirit of water is iron *per se*, or incorporated with *sulphur*, or some other principle, divided into particles most minute by the chymistry of nature, without the interposition of an acid. Nor does this opinion differ from the former, otherwise than in the manner of the solvent. In both, the spirit of waters is allowed to consist of iron, or oker minutely subtilized, one by the help of a volatile vitriolic acid, the other without. In his elaborate inaugural dissertation *De Thermarum antiquitate, contentis, et usu*, Swinhow seems inclined to the latter. His words are these ; “ Tamen hanc sententiam pertinacius profiteri nolim, dico tamen, in praesenti, mihi visum probabiliorem.”

FROM analogy, as well as from arguments and experiments stated and compared, I am inclined to believe, that Bath and Bristol Waters contain a *Spirit* ; that this spirit consists of *Iron* subtilized and suspended by the means of an *Acid*, and that this acid is none other than that *Universal Vitriolico-sulphureous principle* which pervades the bowels of the earth, and which constitutes the life, soul, and spirit of medicated waters. So much for principles common to *Bath* and *Bristol Waters* ; we now proceed to those which are peculiar to *Bath Water*. *Corollary.*

C H A P. II.

OF PRINCIPLES PECULIAR TO BATH WATERS.

Particular experiments. 1. DURING the spring and summer months, there are black slimy cakes which float on the surface of the baths. These were supposed to be cakes of floating sulphur. Mr. Haviland apothecary, first discovered them to be aquatic plants conveyed thro' the crannies of the rocks to the fountain head, the *Jelly moss*, or *Confervula gelatinosa, omnium tenerrima et minima, aquarum limo innascens*, of Ray.

Oker. 2. THE baths, as far as high-water-mark, are lined with a pale yellow *substance*; as are the conduits which carry off the redundant water.

To discover the different degrees of heat, the following trials were made. By Farenheit's thermometer, the hottest spring in the King's Bath raised the quicksilver to 103.—In the coolest part of the same bath to 100.—In the hot bath it stands at 100 or 101.—In the Cross Bath 93, 94.—The Queen's Bath is only a reservoir from the King's, it raises the mercury to 93, 94. The heat at the pumps varied by every trial. At the Cross Bath, the mercury sunk from 110 to 105.—The Hoth Bath from 116 to 112.—The King's from 116 to 114.

The lowest trials equal the heat of the human blood in a healthy state, and (according to Hippocrates) are therefore friendly to the constitution.

4. WEIGHED, Hot Bath water appears to bear the ratio of oz. 4:6:0:12 to oz. 4:6:0:16 cold.

By these experiments we learn, That the different springs are differently impregnated, and differently heated; their produce also is different.—We learn also that they spring not from the same source; for if one of the cisterns is kept empty, this prevents not the cistern at the head of any other spring from filling in its usual time, notwithstanding all the springs break out within the compass of half an acre, in the form of a triangle, whose base measures 415 feet, its longer side 380, and its shorter about 110.

Generals premised, we now proceed to investigate particular *principles*.

I. Of IRON.

UNDER the heads of *Air* and *Spirit*, it fully appears, That (by the interposition of the *Universal Vitriolic Acid*) Iron is not only dissolved, but suspended also in waters; that, as this acid escapes, the walls of the baths and the conduits become incrusted with a pale or yellow oker; that waters, vulgarly and improperly termed *chalybeate*, lose their texture, by being exposed to air, and become unfit for exportation; that the iron-earth is the matrix in which the vitriolic acid is generated; that when a water meets with an iron-ore vein which contains a portion of the universal acid, the acid vapour comes to be concentrated with the water, the chalybeate spaw becomes complete; that when it meets with too great a quantity of the acid, it becomes noxious, and that this acid proceeds from the pyrite, which disunited, composes the *Bath water ferruginous.*[§]

the Bath-sand. Thus, the acid of sulphur forms an union with the metallic parts of the pyrite. This constitutes the ferruginous principle of Bath waters, as by the following tests will appear.

Experiments on the Bath sand. THE first mineral substance that presents itself to our view, is that *Sand-like substance*, thrown up at the sources

of the springs, especially when the inverted cisterns are taken up to be cleaned.

1. To the taste, this substance is ferruginous, and manifestly styptic.

2. THE water in which it is washed, strikes a blue with an infusion of logwood, and a purple with galls.

3. THE residuum, calcined till it ceases to fume, moved to the magnet, some particles are attracted.

4. THE Baths and drains are lined with a yellow oker.

5. WITH infusions of logwood, galls, tea, pomegranate-bark, balaustine, &c. the waters fresh pumped, change to purple. Thus the ferruginous principle seems incontestibly to exist. We now proceed to determine the portion of iron contained in a given quantity of water.

6. IN the third volume of the *Edinburgh Medical Essays*, we find an experiment recorded by

Quantity of iron contain- Professor Monro, which enables us (with some sort of certainty) to determine the quantity of iron contained in

waters. He observes that the proportion of iron in its salt, or vitriol, is little more than one third. If one ounce of this salt of steel be dissolved in 20 ounces of water *Troy-weight*, 142 drops of which solution weigh two drachms, every such drop will contain $\frac{1}{75}$ of a grain of iron.

By

By this standard, the Doctors Charleton and Lucas have investigated the quantity of iron contained in Bath waters. According to the former (*Essay on Bath Waters*, p. 9.) the chalybeate principle in a pint of King's Bath pump water comes out to be $\frac{1}{75}$ of a grain nearly; in the Hot and Cross Bath pump water $\frac{1}{745}$. According to the latter (*Essay on Mineral waters*, p. 293.) every pint of the King's Bath pump water may be supposed to contain $\frac{1}{37}$ of a grain of iron.

In an inconclusive experiment of this sort, it signifies little on which side the quantity scrupulously lies. The experiments of both tend to corroborate the existence of iron. This extreme divisibility and tenuity of metal is the workmanship of wise Nature, who deals out her sanative compositions in quantities which heal safer and surer than waters deeply saturated.

II. Of SALTS and EARTHS.

WHEN I had prepared my materials for the press, I happily met with Dr. Linden, a German, trained up (as is common in that country) to *Metallurgy* and *Mineralurgy*, from his infancy. Assisted by Mr. Morgan, an expert practical chymist of the city of *Bristol*, in his laboratory, we proceeded to experiments more demonstrative and more satisfactory far than those which I had laboured.

Exp. I.

TWENTY-NINE pints of King's Bath water were filled at the cock in a wickered bottle, and carried to Bristol, where it was put into a glass retort in *B. A.* The water *Experiments.*
B steamed

steamed away gently, without coming to a boiling heat.

There appeared no pellicles, no change of colour in the liquor. To the upper part of the retort there adhered clear pellucid salts. The particles which fell to the bottom were also salts, rather insipid to the taste.

There were no earthy parts perceptible to the naked eye, excepting some few yellow specks.

EXP. II.

A PINT and a half of the evaporated water was caught in a vessel which received it as it dropped from the mouth of the retort. This had the appearance of a bittern of common salt. This was put into a Florence flask, which was again committed to the sand. The liquor continued transparent. There precipitated a calcarious earth, in appearance, of the nature of *Magnesia Alba*. The same magnesia, or earth, if it is to be so called, may at any time, be obtained from common bittern.

I have preserved the lixivium still to be seen, of the very taste and consistence of brine, and colourless.

How different these appearances of ours from those mentioned by former inquirers, Liquors *terrestrial, unctuous, brown, Madeira, successions of pellicles, calcarious earths, nitres, alkaline and nitrous salts, &c*! When waters are evaporated in large, flat, open vessels, may not external dust intermix with the process? May not precipitant boiling, in some measure, account for such factitious principles? Alkaline salts are artificial earthy productions. The volatile acid of the salt is detained by the alkaline earth, and mixes so closely that

that both passes together thro' the filtr. When these cause an effervescence with acids, the phenomenon is owing to the alkaline earth which constitutes the basis of the neutral salt, which gives the purging quality to the waters. The powder which puts on the appearance of *calcarious earth*, is none other than Bath-quarry stone dissolved by the vitriolic acid. To confirm this assertion, Let this same stone be dissolved in spirit of vitriol, then mixed with water; let the water be poured off after settling, you have the calcarious earth. If it is precipitated with water distilled from lime and soap-lees, the earth will appear to be Bath-quarry stone.

EXP. III.

EXAMINED in a microscope, the salts put on the forms of six or seven crystals of different sorts. On the different forms into which crystals shoot, little stress is to be laid. Our senses are too gross to dive into the elemental structure of bodies; so that, for aught we know, there may be as many elemental differences, as there are species of salts; or perhaps all salts, in their ultimate elements, may be the same. This we know, that no two salts of the same denomination will, upon trial, answer the same proofs in every respect. We beg leave only to observe, that the Bath-water-salts crystallized in *B. A.* so does *Borax*, in opposition to the common nature of simple salts. Hence we infer, That out of Bath-water-salt a perfect *Borax* might be manufactured.—The Salt of the first evaporation seemed to have a vitriolic taste.—That of the lixivium evaporated, had a large share of the marine.

III. Of SULPHUR.

1. In waters hot and cold, *Sulphur* seems to dwell, though it is often difficult, sometimes impossible, corporeally to exhibit it. In *Sulphur*. the baths of *Austria* and *Hungary*, Dr. Browne not only observed true flowers of sulphur sticking to the conduits; but also declares that the waters, in a few minutes, turned silver black, and heightened the natural colour of gold, *Philosoph. Transf.* N°. 59.—In the Caesarean baths at *Aix la Chapelle*, flowers of brimstone are sublimated by natural heat, and collected in pound-weights.—Harrigate Spaw (according to Dr. Shaw) contains actual brimstone floating like feathers, separable by simple straining.—In *Acidulae* as well as *Thermae*, he has discovered signs of sulphur, *History of Mineral Waters*, p. 54, 55. 88. and through the whole latter part. See *Migniot's Traité des Eaux Minérales de St. Amand*, p. 13. 20. 23.—In *Moffat Waters*, Plummer, a late learned professor of chymistry, discovered many signs of sulphur; *Edinb. Med. Essays*, Vol. i. *Essay viii.*—In *Scarborough Waters* putrified, Dr. Shaw has discovered sulphur, though he could not in the water fresh, *Enquiry*, p. 136.—Of *Dunse Spaw* we have a similar instance, by the ingenious Dr. *Home*, p. 78. 90, 91.

2. *MIGNIOT* and *Blondel* (treating of the waters of *Aix*) record a very singular remark, viz. Not one grain of fixed sulphur can be obtained from even those waters, which not only smell strong of sulphur, but throw up handfuls of flowers of brimstone. The former expresses himself thus, “ Si on vouloit nier que “ les eaux d’ *Aix la Chapelle* soient sulfureuses, “ on

“ on n'auroit qu'à lever une des pierres de mas-
 “ sonerie de leurs bassins, & on trouveroit des
 “ fleurs à poignées ; cependant on a eu beau
 “ tourner le corps des eaux en tout sens, on n'a
 “ pu encore reussir d'en tirer un seul grain, non
 “ plus que des nôtres. *Traité des Eaux Minérales*
 “ de S. Amand, p. 22, 23.” — The latter thus ;
 “ Omnes hi fontes *Corneliani*, &c. sulphur maxi-
 “ me olen, habentque oleose dissolutum, ac bal-
 “ famicis mixtum. Illud, in aquis his & Cae-
 “ sacranis ita subtile est, ut in aquarium examine,
 “ qualiacunque vasa, etiam vitrea pertranseat, et
 “ ne granum illius colligi aut videri possit.”
*Therm. Aquisgranensem, & Porcetanarum descrip-
 tio*, cap. v. p. 80.

The celebrated Fred. Hoffman seems to have been mistaken, when he rashly pronounces his opinion, That there are very few springs which contain sulphur in any shape. By what, from analogy, has already appeared, his experiments seem to be too general, and too much confined. There are waters which run hot with an abominable stench, and which tarnish not silver, yet exhibit manifest signs of a volatile subtile sulphur, sufficient to convince us that they are impregnated with that principle ; nor are they the less salutary for being slightly saturated.

Gaping at clouds of smoke towering up from the surfaces of natural hot baths, ignorants naturally dream of volcano's, abysses, subterranean fires, &c. Without evidence, physicians have traditionally supposed, Bath waters sulphureous ; as they supposed so they practised. On the existence, or non-existence of mineral contents depends the rationality of practice. The question of sulphur cannot therefore be indiffe-

rent. With that same indulgence which we crave, it is our purpose candidly and coolly to wade through this important question.

Mayow. THE first who had the courage to deny the existence of sulphur in Bath waters, was Mayow, and that so faintly, that he hardly challenges attention.

DOCTOR CHARLETON seems neither to have proved, nor denied the existence of sulphur. Disappointed in his hopes of exhibiting real sulphur, he extends the meaning of the word so as to comprehend *unctuous*, or *oily* bodies. To produce this supposed principle, he proceeds to analogous experiments with infusions of *brimstone in spring water*; he extracts a *sulphureous tincture* from the *residuum* of Bath water with *Salt of Tartar*. To sulphur he imputes changes which naturally result from the agents which he employs. He says, "It is a controverted point, " whether or no Bath waters be impregnated with " sulphur."

WHILE he was preparing his materials for the press, Doctor Lucas came to Bath, fully possessed with the current notion of sulphur.

Lucas. Sulphur was the first principle which he proceeded to investigate. Disappointed in certain leading experiments, and piqued at Dr. Charleton's pretensions to the discovery of that vegetable which swims on the surface of the baths; as well to sulphur's being a matter of controversy, he changed his battery, and publicly made experiments in proof of the non-existence of sulphur. His arguments seemed then to me conclusive. Subsequent experiments have induced me to alter my opinion, *Dies diem docet*. Instructed by my fellow-labourer, I am not without hopes of convincing

vincing the reader, that Bath waters are really and truly sulphureous.

MUD, taken up fresh from the bottoms of the baths, smell manifestly of sulphur.

BATH-SAND, sprinkled on a red-hot iron, emits a blue flame, with a suffocating vapor.

To Dr. Lucas the public is indebted for the discovery of a fraud, which had blinded the understandings of learned and unlearned; and which was, on all occasions, adduced as an irrefragable proof of sulphur, I mean the trick of transmuting shillings into guineas. He bribed one of the women-guides; she divulged the mysterious menstruum, *Stale Urine*. Had this gentleman bestowed as much of his labour in proof of the existence, as he has done on the non-existence of sulphur, I humbly think he might have succeeded better. Let the public judge.

a. He dropped a solution of silver in an alkaline ley into Bath water. He observes (page 299) that it grew milky, and put on a putrid smell; a double decomposition infused, ^{Lucas's process.} of sulphur and of earth. He asks, "How then can Bath water be a solution of sulphur, or sulphureous, when it gives no indication of that mineral, and is not even capable of suspending it in a solution?"

His own assertion proves the existence of sulphur: for, by the same parity of reason that acids precipitate the sulphur out of the alkaline solution, the sulphur contained in the water ^{Answered.} mingles with the sulphur in the solution, while both come to be precipitated by the acid contained in the water. Were there no sulphur in the water, this separation could not insure, the whole would unite into one neutral concrete.

In sulphureous waters, there is no such thing

to be expected as a solution of sulphur, such as is produced by art. In nature's laboratory, the particles of sulphur are not dissolved, but suspended.

6. "He mixed a solution of *Corrosive Sublimate* (page 303), and observed that the mixture put on a slight milkiness only, without precipitation. From this appearance he says, *Had there been sulphur in the water of any sort, a milkiness, and a precipitation must have ensued.*

7. "He mixed a solution of Quicksilver (page 304) with Bath water. This raised a bright milky cloud, growing suddenly opaque, and then changing or precipitating to yellow, which, upon stirring, grows white again. Instead of this yellow being produced by the *imaginary sulphur* of the waters, he affirms that this colour and precipitation are produced by the union of the absorbent earth, and the universal acid."

To the two last, and all his other mercurial experiments, we beg leave to offer one general *Answered.* answer. Metallic solutions are, at best, but impotent proofs. Had the Bath waters been sublimated, as they ought to have been, and then been found not to change colour, they might then have justly been pronounced void of sulphur. The production of the union of the absorbent earth and universal acid is merely hypothetical, or rather proves the existence of sulphur; for, if common brimstone is dissolved in order to make *Lac Sulphuris*, the precipitate is white. But, if the sulphur is separated from *Antimony*, or any other mineral, then indeed an orange-coloured precipitate ensues. The springs must be supposed to rise through a brimstone quarry to produce this yellow colour. In the Bath waters

waters the sulphur is only suspended in small atoms.

δ. " He mixed a solution of *Silver*, page 305. This (he says) caused *bright bluish white* clouds, which soon coagulated, appeared *opaque*, and precipitated suddenly in grumes.—These bluish white clouds, &c. are evidences of the existence of sulphur; for, from experience we know, that (in the bowels of the earth, as well as in *Smelting houses*) brimstone coagulates all metals and minerals that are in a dissolved state. Hence it is, that the sulphur contained in the Bath water acts its natural part, by reducing the silver dissolved in the *Aqua fortis* into a solid state, a manifest proof of sulphur."

ε. " He supposes the dissolvent acids either *pure*, or mixed with *martial*, or other *earths*, or inflammable principles. As they happen to be colourless or coloured, so they form different *Luna cornua's* with the metals which they attract."

THESE are hypothetic notions; for, if solvents contained *coloured*, or *colourless earths*, or inflammable principles, they could not dissolve metals, while they were in possession of such contents. Hence, may we venture to affirm, That the colour which this ingenious artist places in his solvent, was the production of sulphur contained in the Bath-water.

ζ. " Solutions of *Sea-salt* (he says) produce the same effects with solutions of sulphur, and from the same causes."

THESE experiments plead neither for or against sulphur. The phlogiston never evaporates; nor is it in the power of chymistry to separate it from water, be it ever so vapid; as may be demonstrated from common electrical experiments. The waters of *Aken* may be deprived of their

volatile spirit, which has a share in the production of colours ; but this has no connection with sulphur.

n. " He then proceeded to evaporate the water (page 310) without any sensible smell. The residuum, thrown upon an ignited iron, fumed slightly without visible flame, or acid vapor, without scintillating, fulgurating, or crepitating. Had sulphur and nitre entered the composition, the effects of gun-powder must have infused."

THESE experiments are inconclusive ; for cathartic salts, and many other things will *Answered.* fulminate without sulphur, while others again will not fulminate with sulphur.

θ. He concludes thus, " Let the inordinate lovers of brimstone know, that sulphur actually dissolved, is decomposed in the evaporation, the phlogiston flying off, while the acid saturates the alkaline salt ; that digestions of the residuum with *Salt of Tartar* may heighten the colour, but this proceeds from that oily substance which is inherent in water in general ; that this is no solution of sulphur appears from this, that acids cause neither stench nor precipitation in the tincture, which must have happened had they contained sulphur."

WE have just observed, That this same *phlogiston* is far from being volatile. It is of an uncertain *Answered.* nature, the cause of colour, and splendour in metals. Was the phlogiston to evaporate in boiling, how could the smelter produce metal out of his furnace ? Sulphureous smells cannot be produced from waters so slightly impregnated with sulphur as ours are. To discover the existence of sulphur therefore in Bath water, mixtures of metallic solutions (as we observed

observed before) are unavailing and exceptionable experiments. Sublimation is the ordeal trial. By *Sublimation* we hope to demonstrate, that Bath water changes its colour, and answers all the characteristics of real *brimstone*.

EXP. I.

ONE ounce of Bath water mud, or rather precipitate, taken up at the bottom of the King's Bath, smelted most sensibly of sulphur.

We mixed one ounce of this mud, ^{Author's} proceſſ. with half an ounce of white *Arsenic*. The mixture was put into a Florence flask, and sublimated in *B. A.* In the neck of the flask there was produced a deep orange colour, or reddish arsenic, of the nature of *Auri-pigmentum*.

EXP. II.

WITH the same materials, and, in the same manner, the same experiment was repeated. The same exactly were the appearances.

EXP. III.

THE residuum of the evaporation of twenty-nine pints, mentioned under the *Section of Salts, and Earths*, about two drachms (for it was not weighed) was, with equal quantities of *white Arsenic*, put into a Florence flask, and sublimated as in Exp. first and second. In the neck of the flask a sublimate appears inclining to yellow. For, as yellow, or red inclining arsenic cannot exist, or naturally be produced, nor artificially imitated without the help of real common brimstone, it is therefore plain from experiments 1, 2, 3, that

the Bath mud, or precipitate, contains a perfect sulphur. These experiments are so much the more to be depended on, as it is well known that arsenic will always attract sulphur, be the quantity ever so small, or entangled. The deeper the orange yellow, or ruby-like colour the arsenic is tinged with, the greater the quantity of sulphur. Newman, Stahl, Henckel, Potter, and other naturalists, maintain that there are no metalline or mineral ores without arsenic, nor, consequently, mineral waters. Those waters in which arsenic predominates, purge and vomit. As Bath waters neither (in general) purge nor vomit; and as they, in part, owe their heat to *mondic*, or *pyrites*, we may hence infer, that they contain sulphur; enough, at least, to subdue the poisonous quality of the arsenic, without defeating its salutary purposes.

THERE are blood-warm waters, such as *Buxton*, and *Taffy's-well*, which are warm without sulphur. These contain no sulphur, nor any mineral whatever. Their warmth proceeds from a steam, which arises from marle, or rotten limestone. But there are no waters which contain salts, destitute of sulphur; for salts cannot be generated without sulphur.

THAT experiment of Boerhaave's adduced to discover the fraud of sulphur suspended in alkaline salts, or *Golden tincture*, bears no analogy with Bath, or any other sulphureous water. For, in waters truly sulphureous, the sulphur is mixed with the aqueous fluid, by the help of the mineral ferment, such as is caused by a bituminous substance. If we drop this alkaline solution into a glass of Bath water, it soon grows milky. The oily, or inflammable principle thus set at liberty by the acid, regales the nostrils with a rotten

ten sulphureous smell. This experiment serves to prove the existence of an acid in the water. It serves also to prove, That Bath water contains brimstone; for brimstone is nothing but the inflammable principle united with the vitriolic acid.

FROM the sum total, we may venture to pronounce, That Bath water *Conclusion.* contains,

1. THE HOT ELEMENTARY FLUID.
2. AIR.
3. SPIRIT.
4. IRON.
5. SALTS.
6. SULPHUR.

C H A P. III.

OF PRINCIPLES PECULIAR TO BRISTOL
WATER.

OF the volatile vitriolic acid of Bristol water we have treated in that chapter which speaks of principles common to Bath and Bristol waters. To particular experiments we now proceed ; and first to such as fall under the cognizance of sense.

Taste. 1. To the *Taste*, Bristol water is particularly grateful, leaving a sense of stipticity on the palate.

Smell. 2. To the *Smell*, it is inodorous.

3. To the *Touch*, it is luke-warm. " In summer 1744, the Earl of Macclesfield made experiments forty days successively morning and evening. The scale of his Thermometer divided the distance from the freezing point to the boiling, into 100 parts. The degrees were divided into parts of degrees. During the whole, the difference never rose or fell a full degree. So that $24\frac{5}{8}$ of his Lordship's scale (the medium of his observations) corresponds to 76 degrees of *Fahrenheit's*.
Experiments to prove the degree of heat.

In July 1751, Dr. Davis, late of *Bath*, made repeated experiments with *Fahrenheit's*, and found the mercury rise between 76 and 77 degrees. The season was remarkably cold and rainy, and yet the heat was not sensibly less the day after the water was fouled by excessive showers and land-floods.

These trials stand recorded, and may be seen in a book now in the possession of the pumpers."

June

June 24, 1761, the heat of the water raised Fahrenheit's Thermometer, at the cock, to $76\frac{1}{2}$, then 3 degrees higher than the external air. That very day, the Thermometer was immersed in water as it issued from the pump of a well of common spring water belonging to the neighbouring Rock-house. The quicksilver rose to $56\frac{1}{2}$ only. On December the first, the coldest day of this winter, Mr. Renaudet, an ingenious surgeon, resident at the *Hot Wells*, made a trial of the heat. In his own bed-chamber, without fire, the mercury sunk, at 9 A. M. to $35\frac{1}{2}$. At 3 P. M. it rose to 38. He then immersed the instrument into one of the drinking glasses at the Hot Well pump. It raised the quicksilver to $76\frac{1}{2}$. So that Bristol water appears to be only $\frac{3}{8}$ of a degree less warm on the coldest day in winter, than on the hottest day of summer. This trifling difference may perhaps be owing to the action of the cold external air on that part of the plate which is not immersed in the water. Hence we learn, that Bristol water is warmer than common spring water by 20 degrees; and 20 degrees below the heat of the human blood in a healthy state.

4. **WEIGHED**, it is of the same specific gravity with distilled water. *Weight.*

It loses only a portion of that elastic air which evaporates before the bottles can be corked. It contains neither animal, vegetable, nor sulphureous particles; so that it may truly be said to be void of the seeds of corruption. Hence may we account for its singular quality of bearing exportation. With a bottle kept twenty-five years, I made the common experiments, to which it answered as well as with water pumped one day.

5. **WITH**

No iron. 5. WITH Vegetable Astringents, Bristol water produces no other change of colour than with distilled water.

6. To distilled water in which *Salt of Iron* had been dissolved, I added Tincture of galls; the purple colour was immediately produced.

These waters stain not linen with what we call *iron moulds*; nor is there the least appearance of that yellow oker that lines the reservoirs of iron waters.—Hence may we pronounce that Bristol water contains no principle of *Iron* fixed or volatile.—To its fixed principles we now proceed.

Salts. 7. THIRTY pints of Bristol water were poured into a glass retort, placed in a sand-heat in Mr. Morgan's Elaboratory. Common spring water was poured into another glass retort placed in the same sand. Neither were brought to the degree of boiling; they evaporated by gentle steaming. In the retort filled with Bristol water there arose a pellicle, which did not appear in the other. The water continued white or transparent, till the whole was evaporated. The residuum weighed ninety grains. The salts being dissolved, there remained one half of an earthy matter.

8. THE *Salt* slightly confined in a Florence flask attracted moisture, a proof of its being of the alkaline nature of common esculent sea-salt. Exposed to the air, it increases in weight, and grows white, or mealy.

9. VIEWED in a microscope, this salt exhibited the form of sea-salt, and calcarious, or muratic, the alkaline nitre of Egypt, the *Natrum Egyptiacum*, or *Sal Murale*, of the antients. This salt is not purgative, as the salt of most mineral waters are. It is of a strengthening nature. Was it therefore extracted, and administered together with the

the waters, their virtues might be much improved.

DR. KEIR (in his ingenious *Essay on Bristol waters*) pronounces it *nitrous chiefly*. His principal arguments are drawn from the forms in which the crystals shoot. But, this test is fallacious, as he candidly owns (*page 26*). He confesses that, on a red-hot iron, it neither flamed nor smoked; nay, it continued fixed in the fire without any other alteration, but the total loss of its pellucidity, *page 81*.

10. PUT on charcoal, and melted with a soldering pipe, it crepitated very little, and, after the crepitation was over, melted like a fixed alkali. It blistered in a small degree, and continued in a soft state while in the fire, in a manner like *Borax*; with this difference, that it stained the poker like wax, which *Borax* does not. As the muriatic salt, or *Natrum*, is a basis to that of *Borax*, no wonder that these appearances correspond. It does not swell into bubbles like *Alum*; nor does it emit a white flame like *Nitre*. Calcined with *Charcoal*, it imbibes the inflammable principle, and forms a *hepar sulphuris*.

11. INTO a solution of this salt, pour a few drops of the solution of *Silver in Spirit of Nitre*. It instantly throws up light clouds, which fall in the form of white precipitate.

12. THE *Lixivium* of Bristol Salts causes no manner of alteration, or effervescence with *Spirit of Vitriol*.

13. DROPPED into *Oleum Tartari per deliquium*, it caused a congelation, or a kind of petrefaction.

14. THE same lixivium changes the syrup of Violets into purple. A solution of *Borax* did the same.

15. The

15. The *Earth* of Bristol Water (by calcination) gives lime; whence it has generally been taken for a calcarious earth, *Earth.* but that conclusion is vague. Soap-lees cause, it is true, no alteration. This indeed is a proof of lime, which makes it a neutral, as lime renders the alkali a neutral to constitute the soap-lee. Dr. Keir supposes part of the lime-stone reduced into powder by the native acid spirit which pervades the caverns of the earth, and which corrodes it to a point of saturation. This he offers only as a conjecture, for (page 87) he says, "It is not hence to be inferred that this water can be of the same nature with common lime-water; that it owes its heat to actual fire; or the igneous parts contained in lime-stone. Page 91, he gives up his corroded powder, and allows the fixed contents to be *Nitre, Marine-salt, and Calcareous Earth.*"

16. THIS earth did not dissolve in fresh distilled water, or even in the acid of sea-salt. It caused an ebullition with acids, which seemed to confirm the opinion of lime. But there dissolved only one half in the aforesaid acid. The remainder put on the appearance of an indissoluble selenite.

THE earthy part of Bristol water may be said to be a *Magnesia Alba*, fabricated in nature's laboratory, by the help of the universal vitriolic acid.

Conclusion. FROM the sum total of these Experiments, we may rationally conclude,

1. THAT those who account Bristol water to be a mere elementary fluid, found their *ipse dixit* on ignorance, the parent of prejudice.

2. THAT

2. THAT those who have charged it with *Iron*, *Nitre*, *Alum*, *Sulphur*, *Chalk*, or *Lime*, have either ventured their opinions without experiments, or have erred in their analysis.

The component parts of Bristol water are,

1. THE TEPID AQUEOUS FLUID.
2. AIR.
3. SPIRIT.
4. NEUTRAL SALT.
5. ABSORBENT EARTH.

C H A P.

C H A P. IV.

OF THE CONSTITUENT PARTS OF BATH AND
BRISTOL WATERS, APPLIED TO THE HU-
MAN BODY.

FROM the experience of twenty years, Frederick Hoffman has declared, "That certain springs, at certain seasons, are frequented by men who have written in an inelegant manner; that their manner of prescribing has been no less preposterous; that theory is, at best, fallacious; and, that the practice of mineral waters can never be ascertained without experience." Bath and Bristol waters have been analysed by numbers; various, discordant, and inconsistent virtues have been assigned; never yet have their principles been reconciled to practice. In the three preceding chapters, I have attempted to ascertain their principles; my present purpose is to reconcile those principles to the symptoms to which they naturally or rationally are adapted. Nor am I (in this my attempt) unapprised of those difficulties which attend researches which admit not of demonstration. By pursuing those tracks which experience has pointed out, we may however be enabled to throw in our aid at those critical seasons when nature seems to lead the way; instead of counteracting her intentions, we may mitigate symptoms, where we cannot cure diseases.

IN my first chapter, I made mention of the only rational scientific method of extending the sphere of mineral waters, I mean, the *Art of Induction*; by this we are enabled to discover those laws, means, or actions by

by which they produce their effects. To bring this art to some sort of precision, it may be first necessary to be acquainted with the *seats, causes, diagnostics, and prognostics* of diseases.

To adapt the virtues of mineral waters to particular diseases, it may be previously necessary to comprehend general doctrines ; this is Boerhaave's aphoristical doctrine. On the subjects of *inflammation, pain, and obstruction*, he has so fully enlarged, that, generals once understood, particular disorders seem self-evident. Acute diseases naturally fall under the province of simple soft water artificially heated ; such may be had here, there, or any where, and, therefore, fall not immediately under my subject.

In *chronic diseases*, there is room for deliberation. Chronic diseases generally take root before the patient complains. Sick people are rarely tractable ; when danger seems to cease, they generally forget the Doctor. For these, and similar reasons, Celsus thinks chronic diseases more difficult of cure than acute ; physicians have much better hopes of a *peripneumony* than a *phthisis*. The same Celsus calls *Cachexy, malus corporis habitus*. From a survey of the causes of Cachexy, we hope to prove that the solids are restored by the fluids. If the fluids possess not qualities necessary for nutrition, the solids cannot be restored. When the humours come to be drained off by evacuations sensible or insensible, the body continues not to be nourished.

GUTTA *cavat lapidem, non vi, sed saepe cadend.* Just so it fares with the human frame ; the fluids strike four thousand times in the space of one hour, against the sides of converging canals. The epidermis peels off, and grows again ; we cut our nails, they grow again ; so fares it with

our

our hair. Parts of our solids pass off by spittle, urine, bile, and excrements ; the solids daily perish.

IN health, the urine is rather high-coloured, with a proper sediment. In cachectics, the urine is crude, and colourless. In weak circulations, insensible perspiration ceases ; the skin becomes parched, nasty, and dry. What used to pass by the skin, now takes the road of the ureters ; Hippocrates observes, that the body cannot be nourished, while the urine continues to be crude, thin, and watry. If it passes in quantity, the body wastes ; if it stagnates, it produces a *λευκον φλεγμα*, or *dropfy*. In cachectics, muscular motion languishes, so does the force of the heart and arteries. The great veins have hardly strength to empty themselves ; the third order of vessels can no longer resorb that lymph which the exhalant arteries pour forth. The *Tunica cellulosa* swells, oedema's arise, particularly in places most remote from the heart. Hence languor, and debility of pulse ; hence palpitation and difficulty of breathing, as Aretaeus well observes, in his *Caus. et Sign. morb. diuturnor*. Such patients ought not to be purged, but strengthened.

THE *Origins* of diseases are not so complex as commonly believed, neither is the method of cure.

Origins of diseases simple. Boerhaave (in his *Academical Praelections*) was wont to observe, That there were many who despised the practice of the antients, because (in diseases differing in their symptoms) they applied the same, or similar remedies. Parents are affronted if they are confined to the same simple regimen. They think themselves well used if they meet with Doctors who ransack dispensatories, changing, compounding, and re-compounding every hour, while far more surely and

and sooner they empty the pocket than the disease; *dum longe certius crumenam exhauriunt quam morbum.* Let those who despise simplicity of practice, consider how many, and how different diseases have, for ages, been cured by the use of *Baths* and *Mineral waters*. To these invalids are obliged to fly after having, to no purpose, tried nostrums the most extolled. *Considerent illi qui simplicitatem artis, in morbis chronicis, elato supercilio, contemnunt, quot et quam diversi morbi currentur Thermarum et Aquarium mineralium usu, per tot saecula, probato. Ad haec coguntur configere aegri, decantatissima alia remedia experti, absque ullo fructu.*

FROM a consideration of the difference of causes which produce *cachexy*, we hope to make it appear that different and opposite remedies are sometimes required. When the body is puffed up with viscid humors occasioned by the debility of the solids, strengthening medicines are the instruments. When attenuated humors pass off, and cannot be replaced by nourishment, when the vessels thus contract, and the sick waste, moistening and incrassating remedies are indicated.

Different diseases require different preparations. Girls bloated with pale inert mucous cacochymy require *Iron* dissolved in vegetable acids, rather than *Iron* in substance; because filings inviscate themselves in the mucus of the first passage, and thus avail but little. But, if there are signs of a predominant acid, then let *Iron* be given in substance, because it not only blunts the acid acrimony; but, dissolved in this acid, produces its effects.

Those

Those disorders which arise from inflammatory lensor are increased by Bristol water, and exasperated by Bath. Pituitous lensor falls under the power of both. Humors transgress by excessive dilution, or by putrescence. For that flaccidity of solids induced by excessive dilution, we find filings of Iron successfully recommended. In dilution caused by putrescence, we find Acids successfully also recommended. When the body comes to be bloated with humors inert and phlegmatic, Chalybeates are indicated. Thus, in a word, chronic disorders, in general, fall under the power of some or other of those principles which constitute mineral waters. For, filings of Iron, and Oil of Vitriol are only succedaneums to mineral Waters.

Some waters contain the elementary fluid only. Such have we named. If simple dilution is only required, these are the waters. If acids predominate, Seltzer waters are indicated. If the action of the solids is to be increased, Spaw and Bath waters inspire the very soul of Iron into pale languid carcasses, so does Tunbridge. If foul Scurvy predominates, Scarborough and Cheltenham conduce. In Worms, and Itch, Harrigate has done wonders. If Scrophula taints the blood, Moffat Wells promise a cure.—In Consumptions arising from tubercles, or in cases where the aerial vessels are choaked, Bristol's penetrating salts have cleared the passages. Its Absorbent Earth has corrected that acrid humour which vellicates the nervous coat of the intestines. Thus has it stopped fluxes in which Opiates and Astringents have done mischief, by stopping expectoration. Its native Acid has banished colliquative sweats, and quenched that thirst which is the constant

constant attendant of the diabetes particularly, and of fevers. The blood has thus again acquired its natural balsamic quality. Fresh lustre has sparkled in the eyes of patients doomed to death.

CACHEXY thus naturally falls under the province of mineral waters; cachexy thus naturally becomes my theme. This imperfect work *Cachexy.* may fall into the hands of men, in whose more penetrating sight, physiological disquisitions may appear superfluous. In the eyes of such, I hope for pardon, if, for the sake of the many, I trespass on the patience of the few. The subject of mineral waters is still rude and uncultivated. Pursuing the footsteps of Boerhaave, that great restorer of physic, it is my purpose to inquire into the *causes, seats, diagnostics, prognostics, and cure of cachexy.* By adapting the virtues of the several principles which constitute Bath and Bristol waters, distant practitioners may no longer wonder why patients labouring under inveterate ailments, receive cures at these fountains.

§. I. THE antients reckoned three *causes of disease, Remote, Predisponent, Cachexy.* and *Proximate.*

1. THE *Passions* claim the first place. Of these I purpose to treat expressly in the last part of this work. Suffice it here in *Passions.* general to say, that nothing so sensibly disturbs the actions of the solids and fluids.

2. DEEP EXERCISES of mind debilitate the nerves, consume the strength, destroy *Study.* concoction, and hinder the secretions. Hence it is that the studious are subject to flatulence, hypochondriac disorders, palsy, and lean-ness.

3. POISONS, by reason of the celerity of their operation, claim the next place. These are vegetable, animal, and mineral. The Poisons. The first act immediately on the nerves of the stomach and intestines. The nature of animal poison is still unknown. The last operate also on the first passages. To this class we refer various sorts of medicines, which produce like symptoms, anxiety, sighing, convulsions, inflammations, and gangrene.

4. OF the different qualities and effects of Air, I have treated in my Essay on the Use of Sea Voyages, as well as in that chapter which treats of *Consumptions*.

5. BESIDES the evident qualities of air, there are others not discoverable by the senses, morbid particles floating in the air. There Effluvia. are effluvia which arise from excrements, rotten vegetables, insects, and marshy grounds. There are subterranean salts, oils, and metals. There are morbid miasmata arising from small-pox, measles, and other infectious disorders, wafted through the air, and again multiplied in the human body. These morbid particles act on the surface of the body, in the ratio of the subtlety, celerity, motion, and figure of their particles. They enter the blood; By the first passages, together with the saliva; By the inhalant vessels of the skin; but, chiefly, By the bibulous vessels of the lungs.

6. SUPPRESSIONS of natural evacuations produce chronical disorders. Retention of excrements of Suppressions. produces wind, crudity, pains of the stomach and head; of urine, dropsy, anasarca, and fever; of perspiration, listlessness, cough, rheumatism, fever, and almost every disease; of the menses, consumption, vomiting,

ing, or spitting of blood, green sickness, hysterics, cachexy, hectic, &c. of the haemorrhoids, asthma, hypo, pleurify, and peripneumony. *Quando enim singula quae aderant, non revertantur, hinc sequitur corporis gravitas, pallor subinde repetens, venter flatibus refertus, oculi concavi, &c.* Aretaeus *De causis & signis morbor. diuturnor. Lib. i. Cap. 16. p. 47.*

7. INTROPULSIONS of skin disorders *Intropulsions.* produce symptoms more terrible.

8. OF *Aliment* I purpose to speak in the last part. Suffice it here in general to observe, That excessive satiety and abstinence are both productive of *chronical disorders.* *Diet.*

9. WATCHING hurts the nerves, *Watching* hinders perspiration, relaxes the fibres, and corrodes the juices.

§. II. THE Effects of remote causes are diminished or increased according to the nature of the body which they occupy. *Causes predisponent.*

1. WEAKLY PEOPLE are, in general, predisposed to disease, and e. c. *Infirm.*

2. THE frame of the body disposes certain bodies to certain diseases, e. g. Long necked narrow chested people are liable to consumption.—Short necked to apoplexy.—Fat to asthma. *Make of the body.*

3. RIGID FIBRES quicken the circulation, increase heat, and thicken the blood. The body comes thus to be disposed to pleurify, *Rigidity.* rheumatism, and inflammatory fevers.

—Where, e. c. the serous part of the blood preponderates, and the secretions are deficient, cachexy, dropsy, oedematous swellings, intermit-

rents, remittents, and nervous fevers, are the consequences.

Delicacy. 4. DELICATE FRAMES are subject to haemoptoe and consumptions.

Blood dis- solved. 5. THIN watry blood produces scurvy, haemorrhages, dysenteries, and putrid diseases.

6. As men succeed to their fathers fortunes, so do they inherit their diseases. From a certain hereditary structure of the solids and fluids, the body is disposed to hysterics, stone, consumption, epilepsy, scrophula, rheumatism, gout, &c.

7. SOME diseases pave the way for others, as asthma for dropsy, cholic for palsey, measles for consumption, &c. Particular parts once *Diseases pro- ductive of diseases.* injured, are affected from the slightest cause. *Neque enim morbi derepente hominibus accident, sed paulatim collecti confertim se produnt,* says Hippocrates.

8. DIFFERENT AGES are subject to different diseases. Infancy has its teething, red-gum, worms, rickets; youth its inflammations; old-age dropsy, asthma, obstructions, &c.

Women. 9. WOMEN are predisposed to green-sickness, hysterics, nervous disorders, and violent affections of the mind.

Proximate Causes. §. III. THE Proximate Causes of diseases are, it must be confessed, often past finding out. Experience has, however, established some general causes.

1. STAGNATIONS of *Blood* produce inflammatory fevers; of *Serum*, spasms, drop-sies, anasarcas, &c. of *Lymph*, glandular swellings; of the *Nervous juice*, apoplexies and palseies.

2. PLETHORY

2. PLETHORY distends the vascular system. Hence debility, heaviness, head-ach, dreams, difficulty of breathing, hysterics, hypochondriacs, polypous concretions, inflammatory fevers, &c.

3. HIGH SAUCES, and fermented liquors give rise to cutaneous eruptions, rheumatism, gout, defluxions, cholics, wasting, and hectic.—Acidities of the first passages give *Intemperance.* rise to belchings, anxiety, gripes, green stools, looseness, and constipation.

4. INTERNAL HARDNESSES, (by pressing on other parts) produce dropfies, asthmas, flatus's, and various other disorders, according to the part affected. *Schirri.*

5. INTERNAL SUPPURATIONS produce diseases inconquerable. Reabsorbed they infect *Suppurations.* the blood with putrid cacochymy. Hence hectic, night sweats, wasting, &c.

6. ACUTE DISEASES terminate in death, health, or other diseases ; in *Acute terminate in chronic.* which last case they may be said to be ill-cured ; though, in many instances, it is not in the power of the most expert to prevent it.

7. CONCRETIONS of all sorts produce chronical disorders. If the bile is stopped in its passage from the gall-bladder into the duodenum, it necessarily stagnates ; while the thinner part is absorbed, the thicker insipitates, and produces chronical obstructions, jaundice, pain in the right hypochondre, difficulty of breathing, &c. Concretions in the kidneys produce pains, inflammation, vomiting, ulcers, bloody waters, suppression of urine, &c. That unctuous smegma which oozes through the

cuticular vessels, if it stagnates, inspissates, and produces *steatomatous* swellings.

8. THERE are spontaneous changes which neither can be seen, nor prevented; hence chronic disorders. Blood drawn from the arm of a healthy man separates into globules red and ferous. If a man lies in a syncope for even a few minutes, his blood stagnates in the ventricles, sinus's, and auricles of the heart, pulmonary artery, sinus's of the brain and uterine vessels: hence palpitations, fixed pain, intermitting pulse, anxiety, difficulty of breathing, fainting, and death.

This was the unhappy fate of my patient, Captain Dorrel of the navy. Five years before,

Cafe. he fell into a syncope produced by watching and hard duty. From that instant he laboured under the complaints above recited. His days were shortened by injudicious bleedings, which destroyed the *vis vitae*; he died cachectic.

Worms. 9. FROM Worms nestling in the first passages, arise cholic-pains, erratic-fevers, convulsions, false appetite, perforations, and death.

This was the fate of Master Tyrrel, a promising young scholar at *Claverton* school, near Bath. Called for in a hurry, I found *Cafe.* him feverish, with a fixed pain in his side. Having no reason to suspect worms, he was, according to custom, bled and blistered on the part. Next day, I found the fever uncommonly abated, the pain was equally intense, and fixed in the opposite side. From that hour, I treated the disorder as from worms, nor was I mistaken; for in a very short time, he voided two round worms five or six inches

inches long. By pursuing the same regimen, I flattered myself with the hopes of a complete cure. My hopes were vain; for, one morning, as I thought I had left him in a fair way, a servant came galloping over the *Downs*, with news that Master was dying. Hastening back, I found him in a cold sweat, faintings, pulse scarcely distinguishable. By the help of cordials incessantly repeated, he was kept alive for some hours only. Surprised at such uncommon appearances, I examined the body, and found the abdomen greatly distended. On laying it open, there issued forth an ash-coloured liquor, of the consistence of water-gruel, some quarts in quantity. Intense cold, intolerable stench, and precipitance prevented my searching for the perforation thro' which this liquor must have passed. In the abdomen there were no worms; but in the small guts there were six, as large as the former, and dead.

10. ACCIDENTS give rise to chonical diseases. By bruises never divulged, children ^{Accidents.} have been subject, all their lives, to convulsions and idiotism.—From vertebral distortions, incurable asthmas and palsies have been produced.

§. IV. FEVERISH DISORDERS, which terminate soon, and which proceed from contagion, have their *seats* in the fluids.—1. Fevers inflammatory and putrid have their seats in the *red globules*; in the *serum*, slow fevers, rheumatism, and gout; in the *lymph*, venereal and other pestilential disorders; in the *nervous fluid*, nervous fevers, effects of smells, and many poisons, such as opium, nightshade,

&c. This last is the most dangerous, because on this spirituous fluid bodily strength depends.

2. NERVOUS and membranous parts of the body appropriated to motion and sensation, are the seats of many diseases ; the brain *Nerves and Membranes.* to epilepsy, madness, lethargy, apoplexy ; the nerves to spasms, convulsions, tetanus, palpitations, convulsive asthmas, vomiting, hysterics, hypochondriacs, and palsy.

3. THE intestinal tube is more liable to disease than any other part of the body. This is composed of folds and windings ; the circulation is slow ; this way goes air replete with morbid particles, as also meats of different and opposite natures ; this is the passage for the saliva, pancreatic juice, both biles, with other humours and liquors fermentable. Here the fibrous part of the food suffers corruption. The intestinal tube is the seat of heart-burn, anxiety, wind, spasms, cholicks, ilium, iliac passion, diarrhoea, dysentery, head-ach, and vertigo.

§. V. THE knowlege of *Diagnostics* is that branch of pathology which treats of the specific *Diagnostics.* nature and difference of diseases resembling one another. Without this physicians cannot form prognostics ; they become the sport of apothecaries apprentices and nurses. As are the different colour, tenacity, acrimony, and fluidity of infarcted liquors, so are the different effects of *cachezy*, viz. whiteness of the skin, yellowish, paleness, lividness, redness ; heaviness, palpitations, crude pale urine, and wasting. The change of the humours is best perceived where the vessels are most naked, as in the white of the eye, lips, inside of the mouth. To sum up the whole, the physician need only recollect what the patient

patient was, and compare that picture with the present.

§. VI. PROGNOSTICS vary with the causes. Suppose, e. g. upon inquiry, I find that the present depraved habit of body arises from *improper diet*, I prognosticate a cure, *Prognostics.* because I reasonably expect it from a better.—

Suppose cachexy arise from defect of animal motion, I promise a cure, provided I can depend upon the patient's exchanging a life of sloth for activity.—Green-sick girls may easily be cured by drinking waters impregnated with *Iron-ore and Exercise*, provided they abstain from tea.—

Suppose cachexy arise from the vice of some purulent or schirrous viscus, the physician who sees farthest promises least.—Lesions of some viscera are more dangerous than those of others. Suppose, for example, vertigo, trembling, weakness of memory, or sleepiness joined to cachexy, the prognostic is apoplexy.—Suppose the patient breathes hard on the least motion, we have reason to suspect a collection of watery colluvies in the thorax, *inde passim prognostis.*

1. PROGNOSTICS vary according to the duration of the disease. Diseases, at first, affect one viscus only; in time they contaminate all. *Quocirca* (says Aretaeus) *ab hac enascentes morbi inevitabiles sunt Hydrops, Phthisis, Colliquationes.*

2. IN forming prognostics, attention is to be paid to age.—Boys grow cachectic from devouring fruit; a purge, and a few astringents; set them again on their legs. Cachexies are not common to young people. Old people, be they never so sound, are daily bending toward some incurable ailment. *Senes juveribus plorunque.*

*rumque minus aegrotant ; quicunque vero morbis di-
turnis oboriuntur, eum frequentius intereunt,* says the
divine old man, *Aphor.* 39.

§. VII. WHEN we take a survey of the human frame, we may well cry out with the Royal

*Cure of Ca-
chexy in ge-
neral.* Psalmist, *Fearfully and wonderfully are
we made !* From a variety of causes, the nerves are irritated.

By this irritation, the nervous juice rushes in upon the fibres ; thus the motion of solids and fluids comes to be accelerated ; thus is their action increased. Hence superfluous humours evacuated ; hence vicious quality corrected ; hence stagnations dissolved ; hence obstructions opened ; hence diseases vanquished. — Ignorant of the

Nature. circulation, and its mechanical powers, the antients ascribed the whole business of medicine to nature. By nature, we understand those powers which are exerted without the help of man. In this sense, the common saying is truly verified. *Medicus minister, natura medicatrix.* But nature is not always all-sufficient. In many chronical diseases, e. g. *rickets, hysterick, p—x, &c.* nature makes no attempt ; no cure is to be expected. In extravasations, e. g. stone, worms, collections of matter ; nature's endeavours are not only insalutary, but destructive. Nature sometimes does good, sometimes harm. Diseases are not, therefore, blindly to be trusted to nature.

To supply the defects of nature, art is to be called. Weak attempts are to be assisted, tumultuous bridled, straying directed. This *Art.* is the business of art. When, for the preservation of health, or the conquering of disease, nature points out something to be done, this we call *Indication.* Indication arises, From

a knowlege of proximate causes ; From experience ; and, From knowlege and experience united. Happy the patient, when these twin sisters travel hand in hand to the same goal !

Art can effect nothing without instruments. The instruments of art are called *Remedies*. Medical instruments are three-fold, *Diet*, *Surgery*, and *Pharmacy*. Of the first I purpose to treat at large in the last part. The second falls not immediately under my subject. Medicines may be divided into *Alteratives*, *Strengtheners*, *Anodynes*, and *Specifics*. Such, in all respects, are *Mineral Waters* in general. Such are *Bath* and *Bristol waters* in particular. The powers of these waters continue to be obscured, 1. Because the particular circumstances of diseases are seldom investigated. 2. Because the causes of diseases are often hid from our eyes. 3. Because the principles on which the powers of the waters depend are seldom subjected to mechanical laws. 4. Because the administration of waters is so confounded with shop compositions, that physicians themselves are often at a loss to know to what the effects are to be ascribed.

§. VIII. RATIONALLY to proceed, it may not only be necessary to comprehend general doctrines, but also to compare the principles of the human frame, with those which constitute *Mineral waters*. Their affinity will not, perhaps, be found so distant, as we may commonly think. Pursuing the general philosophic opinion, those principles or elements which compose the human mechanism, may be reduced to *Water*, *earth*, *the inflammable principle*, *acid*, *alkali*, *spirit*, *fire*, *air*, and the principle peculiar to iron. Professor Gaubius calculates

Principles of the human body.

that principle of *water* which enters the composition, at about nine-tenths of the whole. The proportions of the other principles cannot so exactly be computed; it seems not improbable, that the principle *earth* makes the greatest part of the weight of the remaining tenth. According to *Menghini's* most ingenious experiments, (*Journal de Scavans d'Ital. Tom. 3. page 645.*) the principle of *iron* enters the blood in the ratio of one scruple to two ounces; so that (in a body containing eighteen pounds of blood) iron makes three ounces of the composition. These principles intimately blended compose our solids and fluids.

1. OUR SOLIDS have properties common to solid bodies in general; they have others particular to animals. They are, in general, destined to make certain efforts, by a cohesion proportioned to resistance, attended with rigidity of the bones, and flexibility of the other parts. Besides those properties which are common to solid bodies in general, the members of the human body have particular, such as *sensibility*, and *muscular motion*, as Haller has most ingeniously demonstrated. There are certain fibres destined to transmit those impressions which are made on the body, to the soul. These are the organs of sense; these communicate our sensations of pleasure, pain, and danger.—There are other fibres endowed with the faculty of contracting themselves. This faculty gathers strength by anger; and loses by grief, or fear. The parts of the body are destined to different offices; *levers, pumps, cords, pulleys, strainers, pipes, reservoirs, presses, &c.*

2. ELASTICITY is not only the cause of many effects, but it has a singular influence on the functions of the human body. There are certain fundamental rules relative to *Elasticity*, these effects, which lead us to a certain exactitude in our conceptions of life, health, diseases, together with the operations of medicines ; those of *mineral waters* in particular. 1. Suppose a fibre stretched, its elasticity diminishes of course. This we know from the common experiment of tuning a fiddle. Hence we learn, that (by wakefulness, or excess of exercise) the organs are all on the stretch, the tone of the fibres diminishes, the spirits flag, strength decays. 2. Fibres gradually relaxed, acquire a certain degree of tension. 3 Suppose two strings unbent, one all at once, the other by degrees ; the first becomes the weakest ; between every tension, the other acquires a degree of strength. Thus it is that large bleedings debilitate much more sensibly than the same quantity drawn at different times. The same may be affirmed of evacuation in general.

In many cases elasticity determines the degree of sensibility ; for sensibility is proportioned to vibratility. Sensibility and vibratility depend on three conditions ; elasticity of the part, its degree of tension, and tenuity. This is verified in instruments whose strings are elastic and small ; their tones are shriller.—As it is with musical instruments, so is it with the human machine ; the degree of sensibility is proportioned to the quantity and subtility of the nerves, joined to their degree of tension, with the elasticity of their last expansion. Thus, in delicate persons, the fibres being smaller, have the greater degree of vibratility ; these are more sensible, tho' sometimes less

less elastic ; as a small fiddle-string is more vibratile than a thick, made of stuff less elastic. Addition of tension quickens the sensations. Put any thing favoury into your lips, the nervous papillae raise themselves ; this erection adds to the exquisiteness of taste. Whatever encreases the tension of the skin increases the sensibility of the touch. This is verified in local inflammations ; the nerves which are spred on the skin are in a degree of laceration ; hence pain ; this, particularly, is the case in the gout. Whatever diminishes tension, diminishes sensibility. Those who are relaxed are, of course, insensible, dull, and phlegmatic. This is verified in people who oversleep, or fatigue themselves, and in paralytics. On this, the doctrine of *bleeding, purging, fomentations, cataplasms, pumping, and bathing*, is founded.

3. EVERY one knows blood when he sees it. This blood is formed out of *chyle*, a liquor which resembles milk, produced from food, partly by the action of the stomach intestines, partly by the mixture of, the bile, spittle, and other dissolvents, assisted, not a little, by the genial heat of the bowels. This chyle is absorbed by pipes which carry it into the common mass ; in which it is changed by the action of the solids, particularly the lungs. The blood is contained in vessels of different bores, of which the heart is the base. The contraction of the heart forces the blood into the arteries. These contracting, push it into the veins, thro' which it is forced back again to the heart. The arteries terminate different ways. Some are continued to the veins. Others become so small, that

the

The fluids, their circulation.

the blood cannot pass without being divided. One red globule divides itself into six yellow. There are other vessels which circulate fluids still more subtile. Every pipe has its particular appropriation ; some accompany, and nourish the muscular fibres ; others empty themselves into cavities destined for their reception ; others absorb superabundant liquors ; others filtrate, others evacuate. The skin is pierced every where.

4. THIS short sketch of the human mechanism naturally leads us to the *Soul*. That connection which subsists between the soul and body, is more certain than clear ; they ^{The soul.} cordially communicate their impressions to each other. The nerves are the organs by which these impressions are communicated ; the manner is still undetermined. Of the nature of the soul we are ignorant ; the little that we do know, proclaims a God.

WE now proceed to inquire into the *Virtues* of the *Principles* demonstrated ; or, in other words, to apply them to the human body.

I. AIR.

FROM experiments, we learn that air appears to be in a state of compression while it is immersed in water ; so as readily to escape on the first opportunity. It seems to exert a kind of struggling motion, so as to keep the watry particles at a greater distance, or render the whole specifically lighter. Certain it is, the specific gravity of water appears to be considerably increased on the avolation of the air, tho' the mineral spirit may still be left behind. Hence may

*Air, its
virtues.*

may we infer that the use of air is to rarify the water, to render it more light and subtile, while it continues in its native form. This seems to be confirmed by experience. Water drank at the pump is lighter, flies up to the head, and distends the vessels.

The natural heat of the body, by rarifying this air, widens the passages, and renders it more subtile and penetrating; thus, by entering the smallest vessels, it opens obstructions, and cleanses the smallest canals.

The elastic quality of air may be the cause of that quickness, briskness, and taste, commonly observed in waters drank at the pump.

Lord Bacon judges that the best water, for domestic uses, which evaporates fastest over the fire. Hippocrates supposes that to be the best, for the same purposes, which soonest heats and cools.

Pyrmont waters break the bottles, especially when they are set near the fire, or filled up to the top. For this reason, it is usual to let the bottles stand a little before corking, that a portion of the air may escape. A little space ought also to be left for the air, at the top; for nothing spoils liquors so much as common air. Wines, in casks half empty, grow vapid. Mineral waters become sluggish and indolent.

Mineral waters ought to be drank early in the morning; because the external heat, by increasing the internal motion, dissipates their elastic parts. "Dr. Shaw remarks (of Scarborough water, p. 143.) that, though it retains its purgative quality after the air is gone; yet, it seems not to pass so far into the habit of the body, nor does it produce all its effects, as when drank fresh." In some cases, it is however more

more adviseable to drink it at a distance, especially where the viscera are unsound. This caution is particularly necessary in respect of Bath waters.

II. SPIRIT.

THE SPIRIT of waters (by experiments adduced) is allowed to consist of iron subtilized. By mineral spirit, we understand an elastic fluid blended with the sulphureous *Spirit, its Virtues.* parts of minerals, and which pervades the bowels of the earth, so as to become the animating principle of mineral waters. This is the doctrine of Boyle, Hoffman, Becher, Lister, &c.

As for the virtues of principles, we can account no otherwise than by examining the substances of which they are found to consist; so, for the virtues of the *Spirit*, we consequently have recourse to the known properties of iron. The irony particles found in Bath waters, bear, it is true, but a small proportion, in point of saturation, to the common shop-compositions. *Natural* ferruginous waters are, for this very reason, preferable to shop tinctures or solutions, just as far as the works of almighty chymistry exceed imperfect artificial discoveries.

The medicinal virtues of *Spirit*, or, in other words, iron subtilised, are allowed to be obstruent, and strengthening. To this spirit it is owing, that the waters do not cool or weaken the body, but rather heat, and invigorate; so as to increase the appetite, raise the pulse, and give

a rosy colour to the cheeks. This is the principle that causes them to pass so nimbly, open obstructions, and throw off peccant humours. When this principle comes to be lost, (as has indeed happened to many springs,) the most celebrated mineral waters lose their credit, and sink to the condition of common water. Thus far *Spirit*; we now proceed to the virtues of iron substantially found in Bath waters.

III. IRON.

IRON is absorbent, it ferments with acids, and blunts them to such a degree as to render them imperceptible. This fermentation increases according to the quantity of *Iron, its Virtues.* ore, and degree of acidity. Filings of

iron occasion belchings, like those caused by sulphureous waters. When the stomach does not abound with acidity, they dissolve not easily, but clog the stomach. They ought therefore to be mixed with Rhenish wine. Solutions of iron are strongly styptic. With infusions of most astringents, it turns black as ink.

Salt of iron coagulates the serum of new drawn blood. This is not to be used as an argument against its use; for, in persons who have taken chalybeates for some time, we observe their excrements black; and, on dissection, we have observed the *Tunica villosa*, in the same manner, changed to black, but no alteration in the *Laetals*, or any way beyond the *Primae Viae*. Hence may we infer, that it does not enter the blood, but seems to undergo a precipitation in the first passages, by which it is considerably deprived of its astringency. This change is not proper to iron alone.

alone, it is common also to most astringents. Its astringency is distinguishable by its taste; it occasions a nausea, sometimes vomiting. Hence we learn its stimulus, which is greatly increased by its weight. Its corroborating quality is, not a little, increased by the belchings which it occasions; for, thereby it either generates, or rarefies the air, which communicates an elastic force to our solids, whereby they are assisted in their functions.

In practice, iron is preferable to steel, as it is to all other metals. Its absorbency, astringency, and stimulancy, are easily demonstrated. It is also attenuant, and aperient. It is therefore useful in all disorders which take their rise from acidity in the first passages, such as *Hypochondriac* and *Hysteric Cachexy*, *Quartan Agues*, *Dropsties*, *Worms*, *Obstructions of the Menses*, and *Immoderate discharges*, *Faundice*, *Fluor Albus*, *Diarrhaeas*, and *Haemorrhages*. In chronical disorders, it is the sheet-anchor.

Every corner of the island abounds with chalybeate-waters vulgarly and improperly so called; for, on examination, we find that they contain a very fine *crocus* of iron-ore suspended in the watry fluid. This is none other than that yellow oker which paints the sides of our baths of a yellowish hue, and which dyes the rills which flow from such springs. Ferruginous waters are nature's productions, more subtile, homogeneous, and safe, than artificial productions tortured thro' fire, or altered by the interposition of corrosive menstruums. Hence there arises a question, Whether the softest *Oker*, or *Minera ferri*, found in the course of mineral springs, may not be capable of affording better chalybeate medicines than those usually ordered in Dispensatories? Be this

this as it will, we may venture to affirm, That where chalybeates are indicated, next to mineral waters, iron, in substance, is preferable to every human preparation.

IV. SALTS.

SALTS comprehend that class of minerals which melts with heat, turns solid, hard, and *Salts, their* friable with cold, is soluble in water; *Virtues.* by evaporation, may again be reduced

to their original form; and are generally pellucid and pungent to the taste. Water frozen puts on the form of salt. Boerhaave, in his chymical lectures, was wont to say, that it differed only from salt in its insipid property, and its facility in dissolving.

There are various salts, *Marin*, *Gemm*, *Com-
mun*, *Glauber*. *Ammon*. *Nitr*. *Alumen*. *Borax*, *Vi-
triolic*, &c. In that chapter which treats *Of the
Principles of Bath Water*, we have discovered a salt of the nature of *Borax*, and a *Marine*. In that chapter which treats *Of the Principles of Bris-
tol Water*, we have discovered the *alkaline basis of
sea salt*. Both waters partake of the *Universal Vi-
triolic Acid*. To the virtues of these my present researches are chiefly confined.

Most Salts are comprehended under the two general heads of *Sal Marin*, *Gemm*, or *Fossile*. The first comprehends all sorts of sea salt, however extracted, the second all those dug out of the earth; and, because some imagine that the sea derives its taste from the latter, we begin with that.

1. *SAL GEMMAE* is a white hard pellucid crystalline substance, of a more acrid penetrating taste than common salt produced.

duced from mines, the most noted of which are those in *Poland* and *Catalonia*. The former have been open ever since the year 1252; some say they are 180 fathoms deep. Such quantities have been dug up as to leave a cavern which admits of spacious streets, and regular buildings, sufficient to contain a little commonwealth which never sees the sun.

2. SAL COMMUNE MARIS consists of white cubical crystals not so solid as the former, tho' resembling it greatly in taste, not quite so penetrating, rather a little bituminous. *Sea salt.* This salt is extracted from sea water by evaporation, with a mixture of animal substance. There are salt lakes which yield salt in the same manner. Sal Marin and Sal Gemmae dissolve in the same quantity of water; in distillation, they afford the same acid; either makes a menstruum for gold. They effervesce neither with acids nor alkalies. Warm water dissolves no more sea salt than cold.

Their virtues are the same. They heat, dry, cause thirst, increase the circulation, strengthen the solids, attenuate the fluids, quicken the appetite, promote urine and perspiration, prevent putrefaction, and, if given in quantity, open the belly. They enter the lacteals, and take the whole round of circulation. Mixed with the blood, they prevent its coagulation, nor are they to be altered by any of its functions; but pass off plentifully by urine, as the taste may discover.

3. BORAX is a white crystalline salt, in colour much resembling alum, in smaller oblong pieces, of a penetrating nitro-saline urinous taste, without stipticity or smell. It is *Borax.* easily dissolved by fire, hardly by air. It is now universally

universally agreed to be a native mineral salt extracted from its proper ore, brought hither in pieces of a greyish colour, clammy or greasy to the touch, found in the mountains of *White Tartary*, and in some places of *Perſia*.

As far as its virtues have been discovered, it may be ſaid to be aperient, ſtimulant, and attenuant, particularly useful in promoting the lochia, menses, and urine. Mixed with blood it dilutes it, and ſeems to volatize the fluids. Its ſpirit discovers neither acidity nor alkalescency, nor can an acid be got from it by diſtillation, according to Lemery, *Memoirs de l'Acad.* 1728 and 29.

4. VITRIOL is a ſaline metallic ſubſtance composed of an acid and a metal. This acid, when it meets with an earth, makes an alum; *Vitriol.* when it meets with a metal, it corrodes it, and forms vitriol.

Their virtues are styptic and astringent. By ſtrengthening the fibres, they prove diuretic, are very naſeouſ, and ſo emetic. Too rigid to circulate through the vessels of worms, they destroy them. They cicatrize more powerfully than alum. Quercetanus was ſo bewitched with vitriol, that he believed it contained the virtues of the whole pharmacopoeia. Our ſubject leads us only ſo far as it claims in natural diſtillation.

GREEN VITRIOL is produced by the mixture of an acid ſulphureous ſpirit with an irony ſubſtance. Most mineral waters contain a quantity of irony matter; when therefore the ſubtile universal acid ſulphureous exhalations, in riſing up, meet with irony particles, they unite themſelves thereto, and thus produce a vitriolic principle, of a texture proportionable to the union; the *Vitriolum*

vlum martis blandum, not the *Vitriolum vulgare*, *aut cupri sui generis*. Simple as well as fermented vegetable acids mix naturally and kindly with Bath and Bristol waters. This vitriolic principle is the medium which keeps the other principles united, that powerful instrument, without which all the rest were effete. This acid it is that subdues that hydra of a fever which, in many diseases, expends the natural nourishment in unnatural secretions. Acids have, in all ages, been used as *Antiseptics*. Late experiments have only corroborated what antient experience had discovered.

Oxycrate was the *Panacea* of Hippocrates. In his Commentaries on this divine author, Dr. Glass inculcates the use of *Vinegar*. Boerhaave (*De morbis ex alcalino spontaneo*) says, *Curatio perficitur alimentis potibusve acescentibus, vel jam acidis, sapis acetosis*.—In the *Confluent Small-Pox*, Sydenham acidulated the drink with *Spirit of Vitriol*.—Mead (in the *Confluent Small-Pox*) says, *Ex hoc genere praestantissima sunt Cortex Peruvianus, Alumen, et Spiritus, qui Oleum dicitur Vitrioli*.—At one time, the *Malignant putrid Fever* employed the pens of *Huxham* and *Pringle*. Without personal knowlege, or correspondence, they hardly differ in history, cause, or cure; a manifest proof that nature appears the same, in every age, to those who rationally trace her paths. In the eyes of both, *Acids* are the true *Antiseptics*.

To ascertain the antiseptic quality of *Salts*, Doctor Pringle made experiments. After having shown that alkaline salts do not promote putrefaction, he proceeds (*page 376, Edit. 1.*) to examine other salts, and, by comparing them with the standard *Sea-salt*, of all, the weakest antiseptic, he found the ratio as follows;

Sea-

GENERAL VIRTUES OF

Sea-salt	—	—	1
Sal Gemmae	—	—	1 +
Tartar vitriolated	—	—	2
Crude Sal Ammon.	—	—	3
Nitre	—	—	4 +
Borax	—	—	12 +
Alum	—	—	30 +

V. EARTH.S.

IN different arts, *Earth* has different acceptations. *Earth*, in the chymical language, denotes *Earths, their virtues.* a substance which every simple affords, soluble neither by fire nor water. *Earths*

mixed with water, separate, turn soft, are sometimes suspended in it, then again fall down like mud, leaving the water clear, without communicating any tincture. These are called *Argillae*. There is another species of earth, which, put into water, neither crumbles nor precipitates; 2nd, tho' they imbibe a considerable quantity of it, yet they still retain their former figure and consistence. These are the *Cretaceae*.

The former are moderately astringent and drying; blunt acrimony, absorb humidity; with acids, acquire a sort of vitriolic quality; hence they strengthen lax intestines, restore the tone of the fibres, and thus avail in many diseases of the first passages. Their alexipharmac quality is a mere creature of fancy; nor are they of any other use in malignant fevers than by inviscating, or sheathing acrid particles, not even the boasted *Boles* of the shops; for they enter not the lacteals. The *Terrae Lemniae*, *Sileiacae*, *Melitae*, *Lignicenses*, &c. are much commended by Dioscorides for virtues which we have great reason to suspect. Common clay, or Fullers earth, freed from sand, afford

afford an acid spirit, and may claim the same virtues.

The *Cretaceæ* are all antacid and absorbent. This explains their effects. They are useful in all diseases arising from the corroding acrimony of humours in the first passages, or laxity of fibres. By their absorbent quality, they destroy acids ; and, with them, turn either to a vitriolic or aluminous nature ; hence commended in *Heart-burns*, *Diarrhaeas*, &c. Experiments demonstrate this ; for we see them effervesce with acids. Mixed with stale beer, it becomes sweet. If the hops are overcome by acids, chalk restores the bitterness, but turns vapid if not soon used. Chalk calcined affords a *calx viva*, that of the Dispensatory. Tournefort affirms that chalk heats water, I never made the experiment.

VI. SULPHUR.

SULPHUR is a mineral fusible in a small degree of heat, volatile in a stronger, inflammable, emits a blue flame, and a suffocating vapour. Sulphur opens the belly, and *Sulphur, its virtues.* promotes insensible perspiration ; it passes thro' the whole habit, and manifestly transpires through the pores, as appears from the sulphureous smell of patients who use it, as also from tinging silver, in their pockets. It is a celebrated remedy in cutaneous disorders, internally and externally applied. It prevents the purulent diathesis of the blood. It is antiseptic, it prevents the intestinal motion of animal fluids, and fermentation of vegetables. It corrects saline acrimony, preserves the tone of the solids, and increases sweat, as well as perspiration. It contains most of the virtues of the Balm of Gilead,

D

it

it preserves the tone of the vessels without making them rigid or flexible. It promotes expectoration, and heals ulcers of the lungs. It is also anthelmintic. By the mixture of sulphur, mercury becomes inactive; when antimonial or mercurial medicines exceed in operation, sulphur abates their violence; it checks the highest salivation, but never ought to be administered in cases attended with inflammation. Arsenic is rendered almost innocent by mixture with sulphur. This we have seen confirmed by that experiment made to discover the existence of sulphur in Bath waters; for, as we there observed, it is well known, that arsenic will always attract sulphur, be the quantity never so small.

Hence we infer, That should a small proportion of arsenic adhere to the sulphur, it, possibly, may not, hence, receive any poisonous quality.

VII. WATER.

NOR is the simplest water destitute of medicinal virtues. By its moisture, thinness, or rarefaction, it is wondrously serviceable in preserving and restoring health. It dissolves thick viscid humours, dilutes morbid salts, and discharges coagulations.

The fountains at *Schleusingen*, *Bebra* and *Osterode*, contain no other principle than the simple fluid. They have nevertheless signalized their virtues in the *Stone*, *Gravel*, *Scurvy*, *Rheumatism*, *St. Winifred's Well*, &c.—*St. Winifred's Well* in *Flintshire* is, of itself, a natural curiosity: without intermission, or variation, it raises above a hundred tons of water in a minute. This water is void of every mineral particle, tho'

it rises in the midst of hills abounding with minerals. It possesses an uncommon portion of the *Spiritus Reector*, by some called *Spiritus Mundi*, or *Universalis*. Was this water applied to practice, doubtless it would perform cures in many disorders.

THE Holy-well at *Malvern* is a spring of uncommon purity. Two quarts evaporated in an open silver vessel, left only half a grain of earth, with a quantity of saline matter, so inconsiderable, that it could not be estimated. From experience, confirmed by Cases incontrovertible, we learn, That it has prov'd eminently serviceable in *scrophulous cases*, *old ulcers and fistulas*, *obstructed glands*, *schirrous and cancerous cases*, *disorders of the eyes and eye-lids*, *disorders of the urinary passages*, *cutaneous diseases*, *coughs scorbutic and scrophulous*, *loss of appetite*, and *profuse female discharges*; for the truth of which we appeal to Doctor Wall's judicious *Experiments and Observations on Malvern Waters*.

THE Circulation preserves the body from corruption. Animal juices prove corruptible in a state of warmth, rest, and moisture. To preserve the circulation of balmy juices, it is necessary that the blood should be continually refreshed by an aereal, elastic, similar fluid. Water is agreeable to the animal juices. The blood contains two parts of serum to one of red globules. It contains besides an aereal, aethereal, subtile principle, manifestly appearing by its bubbling in *vacuo*. Nothing therefore can be so natural to the human frame; nothing can so well preserve life. Water divides viscous fizzy humours. It dilutes saline earthy scorbutic salts. These it discharges by the proper emunctories or outlets of the body.

“ There are springs hot and cold, says Hoffman, which (by the strictest examination) manifest not the least sign of mineral, and yet are highly valuable. The waters of *Toplitz* nearly resemble the *Piperine-springs* in *Rhetia*; they are extremely hot. Though they preserve their native purity mixed with acids, or alkali’s; tho’, on evaporation, they leave no solid substance behind, yet they have considerable virtues in disorders external, and internal. The *Schlangenbad* springs of *Hesse* contain no saline, earthy, irony, or other mineral principle that art can extract. By drinking and bathing, they nevertheless perform surprising cures. The waters of *Wilhelms-brun* throw up abundance of bubbles in *vacuo*; they neither grow thick, nor precipitate any thing on the addition of *oil of Tartar*, a *solution of silver*, or *sugar of lead*. They suffer no change from the common experiments of *galls*, *acids*, *alkali’s*, &c.” Most of the cold springs at Bath are hard. Dr. Lucas examined the water of the *Mill-spring* opposite to the *Hot-well*; he found it sparkle like the *Pouhon*. It loses none of its pellucidity on standing open for hours. It weighed one grain less than distilled water. With acids or alkali’s, it gave very slight appearances, &c. On evaporation it only gave five grains of residuum to a pint. The virtues of such waters probably depend on their levity and subtilty. The purer perhaps the more powerful.

Water-drinkers are the most healthy, and long lived. Water is the best menstruum for dissolving aliment, extracting chyle, and carrying them through their proper canals. Water dissolves that viscous slime which lines the glandular coats of the stomach and duodenum. Nor is water inconsistent with fruit; for in *Spain*, *Portugal*, and *France*,

France, water is the common beverage, and fruit the greatest part of diet. Water-drinkers are remarkable for white teeth ; for rottenness of the teeth is caused by scurvy, a disease prevented by the use of water. Water-drinkers are much brisker than those who indulge in ale. Malt-liquors blunt the appetite, and hebitate the senses, they are fit only for men accustomed to labour, or exercise. Persons of delicate constitutions and sedentary lives ought to accustom themselves to cold water, and wine.

Water not only prevents, but cures diseases. Fevers are occasioned by an increased velocity of the fluids, and a rigidity of the solids. These create heat. Heat dissipates the thinnest part of the fluids. The remainder forms obstructions. The blood must be diluted, heat and inflammation allayed, stagnating juices propelled, and morbific matter discharged. No medicine bids so fair for these purposes as water. By *ptisans* alone, Hippocrates cured fevers in his days more judiciously and more certainly far than we with all our modern specifics. He was truly the minister of nature. We commit violence on nature every day.

Chronical diseases take their rise from obstructions, or foulness of the juices. By mineral waters, surprising cures are daily performed. Those cures are principally owing to the pure element. Numberless are the instances of waters performing cures when no vestige of mineral could be discovered.

1. Dr. Baynard says, " I once knew a gentleman of plentiful fortune who fell into decay : while he was in the King's *Cafes*. *Bench*, his wife and children lived on bread and water. Never did I see such a

“ change. The children, who were always ailing and valetudinary, in coughs, green sickness, King’s-evil, &c. now looked fresh, well-coloured, and plump.”

2. “ He tells the story of *Alexander Selkirk*, who, from a leaky ship, was set on shore on the desolate island *Juan Fernandes*, where he lived four years, and four months; during which time he eat nothing but goats flesh, without bread or salt, and drank nothing but fair water. He told me, at the *Bath*, where I met him, that he was three times stronger than ever he had been. But, being taken up by the Duke and Dutchess Privaters of *Bristol*, and living on ship’s provisions, his strength left him *erinitim*, like *Simpson’s* hair; in one month’s time, he had no more strength than another man.”

To recount the virtues of the compound were to anticipate particular disquisitions with cases, *Conclusion.* or cures incontrovertible. From reason and experience I may venture, in general, to affirm, that where the disease is curable, where the director knows his tools, and where the patient co-operates, *Bath* and *Bristol* waters are inferior to none. And that where they have hurt, they have been injudiciously administered.

How inelegant our preparations of iron compared to nature’s solution in its own universal acid! Who can suspend $\frac{1}{35}$ part of a grain of iron in a pint of water? How harsh our preparations of oil, or elixir of vitriol, compared to nature’s Vitriolic Acid? If we may thus expatiate on the particular virtues of separate ingredients, what may we not expect from the united efforts of *The ONE GREAT WHOLE*? How light in the balance are the labours of a *Helmont*, to the processes

cesses of *Almighty Chymistry!* When mineral waters purge, they occasion no loss of strength. When they pass by urine, they cause no stranguary. When they promote perspiration, they occasion no fainting. Persons of all ages, sexes, and constitutions, drink mineral waters successfully. With the celebrated F. Hoffman we may venture to pronounce, “Mineral Waters “come, the nearest, in nature, to what has “vainly been searched after, an *Universal Medicine*; nor can this be disputed, but by such “as derive their arguments from ignorance, or “indolence.”

O F

D I S E A S E S

C U R E D B Y

B A T H W A T E R.

FROM the days of Hippocrates, to the beginning of the present century, the study of *physic* may be said to have continued *Preamble.* vague, indefinite, and uncertain. There were heresies in divinity, so there were in physic. Every age produced men eminent in the profession, Bellini's, Baglivis, Pitcairns, and Friends. Every student was prepossessed in favour of some particular system. As was the theory, such was the practice. By sweeping away scholastic jargon, Boerhaave happily reduced the healing art to reason and simplicity. In his Treatise *De Cognoscendis & Curandis Morbis*, he has selected, and classes the several doctrines, under particular heads. In his *Principia Medicinae*, Doctor Home may truly be said to have surpassed his great master. In point of mineral science, this nation may be said to be yet at the threshold only. Indolence has circumscribed the powers of Bath and Bristol waters to the same diseases in which they were administered in the days of our forefathers. Bath waters are condemned in the very disorders in which they act as specifics. Treading in the steps of

of the celebrated Boerhaave, and the ingenious Home; and shaking off prejudices of all sorts, it is my purpose, 1. To lay down rational deductions of those diseases in which they are said to have been useful. 2. To extend their practice to new diseases; and 3. To confirm these deductions by memorable cures, or *Cases*. This is the plan pursued by the Doctors Coccii and Limbourg, in their elaborate Treatises on the waters of *Pisa*, and *Spa*. In this mirror, distant practitioners may be satisfied in what cases Bath and Bristol waters are indicated. By perusing similar cases, patients may be encouraged to fly to the same cities of refuge. Bath and Bristol waters are not to be recommended as panaceas; like other active medicines, they may, and do often exceed their bounds.

C H A P. V.

O F

D I S O R D E R S
O F T H E
F I R S T P A S S A G E S:

DISORDERS of the first passages are, of all others, the most difficult to cure, and the most apt to recur. Yet, what is as true as surprising; there are hardly any less handled, or less understood.

To form an adequate idea of flatus, rumination, belching, or wind, it may be necessary to take a *digested* flight survey of the doctrine of *Digestion*. Chymists, when they would digest any substance, first pound it in a mortar, then pour a liquor on it; next set it in a warm place, shaking the containing vessel from time to time. Art is only nature's ape. Before the art of chymistry was known, nature performed this process in the stomach of animals every day. By the most curious configuration of parts, and action of muscles, our food is ground down by the teeth, then moistened by the spittle. It is then protruded down the gullet, where it is softened by an unctuous humour distilled from the glands of that canal. Thence it slips into the stomach, where it is farther diluted. There it is subtilised by internal air, macerated by the heat of the circumambient viscera, agitated by the perpetual friction of the muscular coat of the stomach, by the pulsation of the arteries, by the alternate

ternate elevation and depression of the midriff, as also by the compression of the muscles of the lower belly. From the stomach it is propelled into the small guts, in the form of a thick uniform ash-coloured fluid. There it receives a thick yellow bitter bile from the gall bladder, another scarce yellow or bitter, from the liver, with a limpid mild fluid from the *sweet-bread*. These liquors resolve viscid substances, incorporate oily and watry; and, thus prepare the food for entering into those vessels which convey the chyle to the circulation. This constitutes *digestion*, or *concoction*, a process worthy of the consideration of those who undertake the cure of disorders of the stomach and guts.

While digestion is perfect, wind passes freely upwards, or downwards; the stomach is never swelled, pained, or inflated. The aliment undergoes no considerable change. When digestion is imperfect, the patient complains of pain, belching, inflation, cholic, sourness, heart-burn, vomiting, looseness, &c. There is an elastic air carried down with whatever we eat, or drink. The spittle abounds with froth. Air is even carried with the chyle into the blood. There is a perpetual fund for wind or flatus, pain, &c. That the stomachs of animals who follow the dictates of nature should continue sound, we need not be surprised. But, that the stomachs of animals who offer violence to nature every hour, should continue sound, can only be imputed to the wisdom of him who fashioned our clay. High sauces, discordant mixtures, immoderate cramming, heats and colds generate air, distend the stomach, and shut up both orifices. By continuing in the stomach, the food ferments and putrefies; fermentation, putrefaction and rarification

distend the fibres to their full stretch ; thus they produce pain. When the upper orifice comes to be relaxed, part of the air rushes up into the gullet where it is again confined by fresh spasm ; there it produces the sense of a ball, which pressing on the membranous back part of the wind-pipe, brings on difficulty of breathing. When the lower orifice comes to be relaxed, the pent-up air rushes along the course of the guts, producing spasms, pains, cholics, &c. Animal humours naturally putrify, and produce an acid *sui generis*. This acid passing along with air vellicates and distends the intestinal fibres, producing pains, belchings, vomitings, stools, &c. Repulsions of cuticular eruptions give rise also to disorders of the stomach. There is a particular sympathy between the nerves of the stomach and those of the extremities. Those who are subject to chilliness of the feet are very liable to cholics.

THE INDICATIONS which naturally arise, are to cleanse and strengthen. Vomits and purges *Indications.* clear the intestinal tube of that filth which vellicates the fibres. In order to cure those who have been long, in a manner starved, it is necessary to fill the vessels with good blood ; good blood cannot be obtained without good digestion. To mend the digestion, stomachics are indicated ; the best stomachics are *bitters and steel.* In disorders of the first passages, patients are generally languid, emaciated, dispirited and desponding ; they hardly can be prevailed on to submit to evacuants, strengtheners, anti-spasmodics, emenagogues, nervous, and other medical intentions.

MINERAL WATERS answer every intention ; mineral waters fill the vessels with good blood ; mineral waters are the only remedies which (in these

these cases) operate *cito, tute, et jucunde*. To authorities ancient and modern I appeal.

I. OF DEGLUTITION.

THE finger of the Almighty is fairly to be traced in every member of the human frame, in none more stupendously perhaps than in those organs which serve the purposes of *Deglutition*. Those operations which conspire to this great purpose are so various, manifold, and delicate, that nothing but almighty providence can account for the duration of so exquisite a machine during the period of life. If deglutition is hurt, digestion, chylification, and all the other animal functions cease. For want of sustenance, man starves and dies. “ *Jam operosa fit arte deglutitio, tot*
 “ *conspirantes organorum adeo multiplicium &*
 “ *concurrentium actiones huc requiruntur; unde*
 “ *laeditur frequenter, varie; & scitur cur a cibo*
 “ *siccо areant, rigescant, nec deglutire plus, va-*
 “ *lent fauces; Cur, perdita uvula, deglutienti*
 “ *tussis, et suffocationis minae? Cur, fisco velo*
 “ *palatino, deglutienda per nares exitum molian-*
 “ *tur? Velum mobile palati valvulae officio fun-*
 “ *gi narium respectu; & musculi deprimentis,*
 “ *ratione pharyngis, inde quoque constat.*”
Boerhaav. Institut. Med. pag. 49.

When the action of swallowing has defied the utmost researches of art, Bath water has performed wonders.

1. From Dr. Pierce we have the two following facts. “ Mr. Yarburgh a gentleman of 56, having (for many years) been subject to a difficulty in swallowing, liquids es-^{Pierce's Cases.} pecially, came to Bath. He had consulted a variety of physicians, who, accord-
 “ ing

“ing to their idea of the disease, treated him all differently.

“ He swallowed the waters with no small difficulty at first; but, by degrees, that obstacle was removed. He had his neck and stomach pumped in the Bath. He went away very much advantaged.”

2. “ Mrs. Kirby of *Bishops-Waltham*, aged 40; had (some years past) a scarlet fever; and, being put into a sweat, took cold, which brought on a defluxion of cold rheum, which had like to have suffocated her. From that time, she had a more than ordinary freightness, with some difficulty of swallowing. Two or three years after, having a violent haemorrhage from both nostrils, which, by cold applications, was as often stopped; but in March 1693, falling a bleeding in the night, she was blooded to a great quantity, which brought on a thorough inability of deglutition. She could chew, and, with her tongue, thrust it back to the top of the gullet, but down it would not go without the help of her finger, which often she was obliged to do, for fear of starving.

“ At first, she hardly could swallow the water by spoonfuls. Soon afterwards she drank half a pint at a draught, and three pints in the morning, and more. After a month’s drinking, I advised pumping her neck and throat. After six months she went home so much recovered, that she continued well all the winter. She returned in summer, drank and pumped, as before, with no small addition to her former benefit.”

3. From Dr. Guidot’s *Register* we have the following. “ Madam Philips (in a palsy of the muscles

“ of..

“ of the throat) by bathing and drinking received
“ great benefit.”

“ Of those who drink waters on account of
“ the weakness of the organs serving for nutri-
“ tion, Baccius (*De Thermis*, page 111) Antient ana-
“ logical gene-
“ ral proofs.
“ says, There are not a few who want
“ corroborant baths. Of corroborant,
“ or comforting waters, the common ratio is that,
“ by a peculiar virtue, or, by equality of tempe-
“ rament, they may so confirm the nature of par-
“ ticular viscera that they may be enabled to re-
“ jeet superfluous humours; of this virtue are
“ the waters of *Grotta*, *Villa sub Luca*, &c. Such
“ we may pronounce the Bath waters.

“ There are waters which have the property
“ of exuding phlegm, viscidities, and crudities
“ of all sorts, such as the *Porretanae*, which con-
“ tain alum, and a little iron. The *Albulae* are
“ noted Diuretics. Salt waters generally act by
“ vomit. Those waters called *Atramentosa* vomit
“ violently, such as that of the *Styx* in *Arcadia*,
“ by which, it is said; that Alexander the con-
“ queror of the world was killed. There are o-
“ ther waters which stop vomiting and nausea,
“ iron waters especially.”

In hot affections of the stomach the antients prescribed baths gently cooling, of the iron kind. Acid waters were also recommended internally, and externally. In dry, desperate debilities of the stomach, they used tepid baths of common soft water. In sighings, they ordered cold water at meals. In *Cholera*'s Galén ordered glysters of salt water, drinking warm water. In the *Patio Caeliaca*, and lienteric crude fluxes, Celsus successfully recommended refrigerant iron opening waters. The same were ordered in redundancies of black bile, with faburration, and arenation.

For creating appetite the nitrous, salt, and waters, such as the *Grotta*, were recommended. These, convalescents and women with child approached safely.

“ Per haec itaque quae communiter nutritioriis accommodata sunt remedia, facile Balnea quae ventriculum juvant, inferemus, says Bacchius *De Thermis*, page 112. Corroborant enim, ac frigida simul et sub callidae faciunt temporei eadem balnea tam epotae, quam, in balneis ebibitae, et quae ex ea ortum habent affectiones, debilitatem, ac dolorem tollunt ventriculi. Calidis vero harum partium intemperamentis succurrentum per balnea quae modice refrigerant, reprimantque, astrictoria facultate, ut, ex *Ferratis*, appositissima est *Ficuncella* aqua in potibus, *Villa Lucae*, *Sanctae Crucis* ad *Baias*.

“ Acidæ vero aquæ omni, id genus, calidae intemperiae propriae, quales ad *Anticolum* in *Campania*, &c.

“ Ubi enim confirmata intemperies vicit humidum, sicca ac desperanda introducitur ventriculi tabes, aquis dulcibus temperatis consulendum, ac per *Hydrolaei* fatus. Singultui vero per frigidam cibis superbibitam, ac tepidam.

“ Choleram vero sedant, in fine, *Ficuncellæ*, *Porretanae*, *Villa Lucae*, &c. nec minus *Clysteres* ex *salsa*, auctore Galeno.

“ Subcutiles aquas videtur probasse *Celsus* in *Caeliaca passione*, ac *Lienteriae fluxibus* quibus *Grottae* potionis egregie medentur, et aliae ex ferri natura, refrigerantes, astringentesque, vacuando, ut *Porretanae*.

“ Atra vero bile, in ventriculo vexatis, eaedem dem consuluntur, cum *Arenatione*.

“ Ad

“ Ad excitandam vero appetentiam nitratae faciunt et falsae, et acida privata facultate, quales *Grottae*, quae convalescentes etiam et praegnantes circa noxam appetere promittunt. Noxam vero e diverso *Caninae famis* voracitatem collibent *Cellenses* ebibitae in *Helvetiis*.”

FOR the operation, and effects of *Bathing* in these, and other diseases, I beg leave to refer the reader to my *Attempt to revive that practice*. Suffice it here, in general to affirm, That, in *cholicks*, *gripes*, *atrophy*, *cramps*, and other internal maladies, bathing cures where drinking fails.

II. OF DEPRAVED APPETITE.

1. “ Dr. Pierce mentions the case of Sir William Clark, Captain of Horse, who, (by colds and other irregularities attending winter campaigns) had wholly lost his *appetite*. He supplied in drink what he was deficient in eating. These brought on a *Cachexy*, he looked yellow in the face, reached in the morning, was tired, fainty, and subject to a diarrhaea.

Pierce's Cases.

“ In this state he came to Bath April 1693. Willing to be well, but hating to take physic, or even to drink the waters regularly, he bathed sometimes, and drank sometimes, by which he recovered wonderfully. His vomiting ceased, his looseness stopped, he eat mutton and drank sack. His complexion cleared, he returned to *Flanders* to his duty.”

2. “ Mr. Ellesby Minister of *Chiswick* came down very faint, weak and stomachless about the middle of April 1690. Every thing that he eat he threw up. He was withal in great pain,

“ he

“ he could neither sleep at night, nor sit easy by day. He had the jaundice also.

“ He drank the waters for ten days, and found no benefit. But, at length, the waters opened his body, which was always costive, cleared the first passages, restored his appetite, and abated his pains. He returned in August, and, by that trial, was so much mended, that he whose voice could not be heard across a bed-chamber, preached in our large church with great applause.”

Baynard's Cases. Dr. Baynard (speaking of Bath waters) says, “ In *decayed stomachs*, and *scorbutic atrophies*, and most diseases of the liver and spleen, I hardly ever knew them fail.”

3. “ Madam B. a Lady of quality, loathed every thing she smelt or saw; she was so weak that she hardly could stand; she vomited up every thing, she took little or no rest, her pulse was hardly perceptible, her eyes sunk, with ructations, cholic pains, hysterick fits, and clammy sweats.

“ When I first saw her, I considered her in Lady Loyd's case exactly, when the vital flame was blinking in the socket (by the cautious use of Bath waters, and Bitters) she had a new life put to lease.

“ This lady was so very weak that at first I gave her only two or three spoonfuls of water, and about an hour after, a little more water, then bitters, and so by degrees, I brought her to bear half a pint hot from the pump, which staid without loathing, or vomiting.

“ She now began to bear the smell of meats, she took a little chicken broth, then eat a little meat;

“ meat ; and in the space of nine or ten weeks, “ recovered so, that when she walked in the *Grove*, “ she was pointed at, saying, *There's the Lady* “ *who was so weak.*”

4. “ A gentleman with a decayed stomach, “ wan and pale look, staggering under a load “ of nothing but skin and bone. From a strong “ young man, wine, women and watching had “ reduced him to a mere skeleton, he could not “ swallow the least sustenance without vomiting.

“ By the use of the water, and temperance, he “ came to his stomach ; his flesh plumped, his “ colour returned. In ten weeks he was as well “ as ever.”

5. From Dr. Guidot's *Register* we have the following. “ Henry Owen of *Threadneedle-street*, “ troubled with an indigestion, wind, “ obstruction of urine, and tormenting ^{Guidot's} *Cases*. “ pains of the bowels, came to Bath “ the second time, the first having proved ineffectual, where he drank only three pints for a “ week, and bathed fifteen times in the Cross-“ bath, in which he drank three pints of water, “ and received a cure. After leaving off, he “ voided a great quantity of fabulous matter for “ three months time by urine ; and now, from a “ thin consumptive, and deplored spectacle, he “ is become fleshy, of a good countenance, “ and laudable healthy temper. This account “ I had from his own mouth, February 1686.”

IN restoring the tone of stomachs destroyed by hard drinking, Bath water ^{Hard drinking.} may truly be said to be specific. It were superfluous to produce examples, the fact is notorious.

III. OF PAINS OF THE STOMACH.

STOMACH PAINS have obtained various names, *Cardialgia*, *Attritio Ventriculi*, *Heart-burn*, &c.

Stomach aches. These are supposed to be caused by the action of corrosive humours on that

plexus nervorum which covers the orifice of the stomach, and which takes its rise from the *Par vagum*, or eighth pair of *Willis*.

1. " Juvenis quidam stomachum debilem ha-
Proofs anti- " bebat, et per ingestionem, saepe lien-
ent and ana- " terias passus est, corpore macilento
logical. Ugu- " haemorhoidibus afflito. Bene pur-
linus De Bal- " gatum ad balneum *Villae Luccae* ac-
meisa Pisani. " cedere jussi, et convaluit."

2. " Dominus Maltesta pessime dispositus erat
" in putritivis; per annos tredecem, vexatus e-
" rat fluxu stomachico & hepatico, corpore ex-
" tenuato, haemorhoidas paciente, cum ardore u-
" rinae; erat etiam podagricus. Caepi ab aperi-
" tivis quae statim profuerunt; postremo balne-
" um consului, medicis aliis reclamantibus. Ivit
" et mire convaluit."

3. From Dr. Pierce we have the following *Cases*, and first of his own wife. " She had long been

Pierce's Cases. " subject to pains in her stomach, she
" had the advice of all the physicians
" who attended the court hither, and
" all to no purpose. She had been naturally sub-
" ject to a consumption, and was worn out by
" pain.

" She began these waters at last, and went on
" with that success, that, in a little time, she
" began to be at ease, and was at length freed
" from her pains; she recovered her lost appe-
" tite, gathered flesh and strength, and continued
" free

“ free from her returns of pain longer than after
“ any course of physic she had taken before.
“ Whenever she found any bodings of pain, she
“ applied to the waters at any season, and found
“ her cure.”

4. “ Sir Willoughby Aston was violently seized
“ with this *Cardialgia*, and finding no relief in
“ the country, he was hackneyed away to *Tun-
bridge-wells* by an eminent physician of London.
“ These increased his pain so that he seemed to be
“ inwardly convulsed.

“ He came into my house on the twelfth of
“ September 1693, his torture was so great that
“ he was forced to take anodynes, and that fre-
“ quently. Without any other preparation than
“ an anodyne the first night, he drank three pints
“ next morning, which, after a while, was in-
“ creased to two quarts, or more. In one week
“ he had manifest abatement of his pain, and, in
“ a month, was perfectly well.”

5. “ Sir James Rushout came to Bath in No-
“ vember 1760. Besides violent pains he com-
“ plained of sour corroding eructations, which
“ he compared to *vinegar*, *oil of vitriol*, and *aqua
fortis*. Long had he been troubled with it, and
“ much had been done for it, all to no purpose.
“ He brought down directions and medicines
“ with him from town. The waters passed well
“ enough, he had some degree of abatement of
“ pain. After about three weeks, they began to
“ discharge quantities of adult cholera by stool,
“ which alarming his family, they applied to
“ me. I encouraged the flux, as by it, I
“ found his complaints abated. Thus he recov-
“ ered.

6. From Dr. Guidot's *Register* we have the following. "George Kelly of *Covent-Garden, Barber*, aged 23, had been long afflicted, and almost worn out by tormenting pains in his stomach and guts, with a hectic fever."

"He drank the waters fourteen days, from three pints to eight, and, at a fortnight's end, received considerable benefit. He bathed four times; and, in one month's time, was perfectly restored."

7. Ten years ago, Mr. Hone of London, Painter, came down for belching, flatulency, indigestion, and total loss of appetite. By drinking the waters, his complaints vanished almost the very first week. He continued however to play with the waters five weeks longer, returned well, and continues to this day.

8. Mr. Jackson of London, Irish Linen-Merchant, came down about the same time, and with the same complaints, he found a cure almost as soon.

9. At the request of my worthy friend Dr. Campbell of *Hereford*, I visited his father, Mr. John Campbell, man-midwife at *Sutton* near *Chippenham*, aged seventy, of an excellent constitution and regular life.

His *Tunica albuginea*, nails, and skin were yellow, so was his urine. He had been subject to *Agues*. His Stomach had lost its digestive and expulsive faculties. For a week or two his food lay quiet, and yet he had a stool almost regularly once a day. When his stomach was quite distended, he felt a sense of weight, pressure, and uneasiness for some days. These were succeeded by racking pain, violent reachings, and excessive shakings,

shakings, or rather shiverings, which terminated in profound sleep. After the paroxysm, the yellowness, and itching was universal. The last continued, the first disappeared in a few days.

I recommended the Bath waters. His hopes, and wishes were for death. Much against his inclination, I forced him into my chaise, and conducted him to Bath. Without preparation, I put him on drinking the waters, first, in small quantities, gradually increased. His intermissions were longer, his appetite, spirits, and hopes increased. His paroxysms however returned.

Despairing of cure, and tired of life, he would go home at the end of six weeks. He drank the waters at home, a pint twice a day, with forty drops of *Elix. Vitriol. acid*, always once, sometimes twice a day. The effects are extracted from his Letter of date Nov. 4, 1761, now before me. " For the first month two or three severe attacks. My fits then abated until they quite ceased. The universal itching continued for months. Now I am well; my urine has been natural a great while. I have a very good appetite, which I check, as you desired, I now and then venture on a wing or breast of a fowl; I long for meat. My waters, and my drops I continue, and resolve so to do (God willing) through the winter. I have changed your opening tincture for *Sal Absynth.* and *Mercur. dulcis*, which are more agreeable. I have had two severe bouts of purging. In other respects I am as well as a man of my time of life can be, for which, though you forced me to my cure, be pleased (Worthiest Sir) to accept of the thanks of

" Your most obliged humble Servant,

" John Campbell."

10. Miss

10. Miss Davies was sent down from London for an acidity and pain in her stomach. She found relief the very first week.—The last four took not ten shillings worth of medicine among them.

11. The Reverend Mr. Simons of *Kent* delivered the following history into my hands, which he desired should be published. “About the middle of September 1760, I was first taken ill with a pain of my bowels, and, in a day or two, it became most excruciating. Nothing past through me; but, in few days, these symptoms were removed, by the aid of medicine. I remained however totally without appetite, my digestion was extremely weak, and I had, at times, great pain in my stomach. By change of air, exercise, and medicine, I got rid of my pain, but the want of appetite, and digestion still remained, so that I became much emaciated, and so weak that, at times, I was like to faint away.

“In December I came to Bath, and began to drink the waters. The pain of my stomach returned; I continued nevertheless to drink them, and was taken with a violent vomiting, which was relieved by medicine. I continued the waters, and rode out in a chaise, in which I was very ill.

“In a few days my appetite returned, and my pains left me, and returned no more. I continued nevertheless to drink the waters for six weeks at that time, and returned next November to confirm my cure. I drink them now, and (thanks to God, and the waters) am in very good health.”

IV. OF THE BILIOUS CHOLIC.

THE BILIOUS CHOLIC is a violent pain which begins with a fever that lasts a few hours. The bowels seem to be tied together, or pursed up and perforated as it were with *Description.* a sharp-pointed instrument. The pain abates and comes on again. In the beginning, the pain is not so certainly fixed in one place, nor the vomiting so frequent, the belly yields with less difficulty to purgatives. But, the more the pain increases, the more obstinately it fixes in one place, the vomiting returns the oftener, and the belly is more costive, till it generates at length into an *Iliac Passion.*

This disorder is distinguished from a fit of the *Stone* by the following signs.

In the *stone*, the pain is fixed in the kidney, and extends from thence along the ureter to the testicle. *Difference between a fit of the cholic, and that of the Stone.*

In the *cholic*, it shifts and straitens the belly, as if it was bound with a girdle.

In the *cholic*, the pain increases after eating. In the *stone*, it rather abates.

The *cholic* is more relieved by purging and vomiting than the *stone*.

In the *stone*, the urine is at first clear and thin, but afterwards lets fall a sediment, and afterwards gravel and small pieces of stone.

In the *cholic*, the urine is turbid from the beginning.

In *Disorders of the Intestines* Baccius declares the power of mineral waters, pag. 114. "Pertinent autem ad Intestinorum affectiones tam jure potus quam balnei omnia quae paulo ante ad nutritionis instru-

“ mentorum tutelam citavimus. Galenus (De san. tuenda) inter delectoria medicamenta, enuntiat usum aquarum sponte manantium, leniter evacuantium, ad mesaraicarum obstruções, simulacque corroborandum. Talis *Plaga*, et *Funcaria ad Baias* quae excrementsa abstergunt, aperiunt obstructa, et refrigerant. Efficaciores aeneae, *Grottae* imprimis, et *Porretanae* ex alumine, et ferro nobiles *Albulae*.

“ In *Dysentericis cruciatibus* revocant hodie fere omnes de morte ad vitam *Aquaes Salmacidae*, servanturque in longinquis regiones adlatae toto anno, incorruptae. Harum antiqua laus est a *salis* natura, attestante Cor. Celsio. In *Dysentericis* muriam quam asperrimam suadet *Temison*. *Muria* (inquit Dioscorides) *Dysente-* *ricis* infunditur, etiam si nomae intestina corripiant. Eadem testatur Plinius, et etiam Paulus dicens *Muria et portulacae succus dysentericis con-* *venit*. Notum in *Dysentericis* curari nonnullos harum potu in principiis, affectu sciz. non admodum acri, nec cruento. Porro, ubi non mac apparuerint, i. e. cum manifesta erosione, et purulentis excrementis, naturam significat tunc pus movere, ac concoctionem moliri, juvandamque abstersione, et exsiccatione per has aquas. Memini hic Romae Alex. Fortunatum medicum, pro harum aquarum penuria, Dioscoridis exemplo donasile urinam humanam quam recentem, et in clysteriis, et in potibus, indoneo successu, quod, ea ratione non damnaverim.

“ Caeterum plurimae, id genus, aquae vermes ingeneratos enecant, extruduntque, maxime amarae omnes, acres, ac fortes, quales ex atra- menti materia in *Volaterrano*, &c.

“ *Flatibus*

“ Flatibus vero ex intimis intestinorum discutierendis, ut in *Colica* usu venit, ac in *Ilei* cruciatibus, praedictarum potus non medice operantur, item clysteribus, torfione praesertim infestante. Efficacissima *Aqua Aponi*, *Asculanae*, *Lucanae*, *Caiae*, *Aquisgrani*, *Gellenses*, &c. bituminosae, salsa, omnes ubicunque terrarum, pro calido fomite actuali, digerentes, de discussoriae. *Colicae* Alexander *Trallianus* exhibit *Thermales* aquas quae evacuant, et calfaciunt et item *Avicenna* xvi. tertii.

“ Siccae vero intemperiei, ut siccantia et calida balnea improbantur, ita balneis dulcibus utensum, et ex herbis emollientibus, hydrolaeum, et oleum. Porro discussorii balnei vice artificialia aliquando sufficimus ut *Vaporarii* usus, atque olei, vel hydrolei, folio tepente, si faeces indurentur, vel sicca alvi intemperie pendeant dolor.

“ Frigidis vero intemperiebus satis calorifica faciunt, competenti usu.”

1. From Dr. Pierce's *Bath Memoirs* we have the following *Cases*. “ Mr. Collins Woolrich apothecary of *Shrewsbury*, was seized with torturing pains in the stomach, bowels, and back, successively, for the space of ten hours, and then ceased of a sudden. The next night it began and ended as before, and so day after day, from six at night till four in the morning, from the ninth of September 1683, till May, when the warmth of the season kept off the disorder till September following, when it began as before, and so year after year (excepting 1686) for seven or eight months together, during which time he was necessitated to vomit about an hour and a half after eating constantly, his paroxysm con-

“tinuing ten hours, all which reduced him to
“great weakness, languor and dispiritedness.

“By Dr. Baynard’s advice and mine, he im-
“mediately began the waters, for he had been
“sufficiently prepared at home. After the sixth
“morning, he perceived a sudden and manifest
“removal of a load from his stomach into his
“lower bowels, and presently had a large dis-
“charge by stool. From that day he had neither
“pains nor vomitings, yet he kept on drinking
“the waters for a month at least.

“He kept free from any return till 1691, when
“finding some disposition to it, he returned in
“August, and drank them with the same success;
“for it returned not again till September 1693,
“when he came hither again, and was relieved
“the third time.

“He hath been here the two past seasons for
“prevention, and is resolved so to continue to do
“as long as it pleases God to grant him strength.
“This is the patient’s own account delivered
“verbatim, this last season 1695.”

2. Captain Wilkinson of *Brewer-street, Agent,*
had, for many years, been a martyr to the *stone*

Author’s Cases. and *bilious cholic.* After thorough trials
of all pretended *Solvents*, and emaciated

by incessant pain, he cheerfully submitted
- to the operation of *lithotomy*. When the
stone was extracted, he told the surgeon that he
would willingly submit to a second cutting, if,
by that, he could be cured of his cholic. His
vomitings were then so incessant, that his sto-
mach could keep nothing. In this condition he
was transported to Bath; where, for some time,
he threw up Bath water, and every thing else.
By degrees the water prevailed. His stomach
bore a little food, he gathered strength. His pa-
roxyms

· paroxysms continued however to return now and then as usual. The harbingers of the fit were tingling and involuntary motions of the knees. To these succeeded violent reachings and racking pains. Pills of opium he threw up as fast as he swallowed them. Visiting him one day in the fit, I enquired whether opiate glysters had ever been prescribed. To which he answered, no. A glyster of the common decoction with one ounce of the *Tincture of Assa fetida*, and forty drops of *Laudanum*, was immediately injected. In a quarter of an hour afterwards he threw himself down on the bed, and slept eight hours, awaking in heaven, as he called it. Twenty four hours after, the paroxysm returned with equal violence. The same glyster was injected, with the addition of twenty drops of laudanum. The same sleep and ease ensued. Twenty four hours after, the same symptoms returned; he begged for the same glyster, which procured not only the same cessation from pain, but a total cure. By perseverance in the waters, he recovered complexion, appetite, strength, and spirits, so that he lived for years a comfort to all who knew him.

3. Lieutenant Matthews, of the ship of war *Duke*, delivered into my hands the following state of his case, drawn by Dr. Huxham of Plymouth, the physician who had attended him for twelve months and upwards.—“ He hath long been subject to a variety of nervous disorders, great flatulence, costiveness, frequent pain, and very great acidity in the stomach. He hath lately had several very severe attacks of a *bilious cholic*, with continual vomiting of sour phlegm, and vast quantity of yellow and very green bile, great distension of the belly, pain in his loins, and difficulty of urine commonly high colour-

“ ed. He sleeps badly, hath very little appetite, “ and worse digestion.”—To which let me add, that he was so weak when he set out, that he was obliged to be lifted into his chaise.

By easy journeys he arrived much recruited. Without preparation I prescribed the water in very small quantities. His sickness abated, his tremblings declined, his appetite increased, his sleep returned, his skin changed its yellow hue, he galloped on the *Downs* every day. During his two months course of drinking and bathing, he had but few returns of his reachings or sickness, and these very tolerable. He now and then complained of heat, and restless nights, for which I ordered some doses of *nitre* and *testaceous powders*, which bringing on a gentle diaphoresis, relieved him. He had been used to an opening pill, instead of which I advised him to eat half a dozen china oranges every day, and to drink punch made of *Seville*, by which his body was kept soluble. Without the help of medicine he grew plump and jolly, complaining now and then of flying pains in his joints. Finding that he had formerly been subject to the gout, I advised him to make haste home. Hardly had he rested from his journey, before he was attacked with a smart fit, which completed his cure.

4. FROM the coast of *Guinea*, Captain John Clarke of the frigate *Melampe*, came to Bath emaciated and tormented with the relicts of a bilious disorder, in which his life was often despair'd of, and which obliged him to quit. By bathing and drinking, he perfectly recovered.

5. THE Honourable F. Cary, Governor of *Goree*, left that island in a state of health the most hopeless. By a bloody flux and bilious fever, he was reduced to the greatest degree of weakness,

weakness, attended with swelled legs, wasting, and cachexy. His bloody flux degenerated into a lientery; his food passed through indigested; he was frequently tormented with griping pains, nausea and sickness.—By easy journies, he first arrived at Bristol-Hot-Wells, where every glass aggravated his pains and produced vomitings. Bristol he exchanged for Bath, where he recovered completely in the space of three months, by the internal use of the waters, little assisted by medicine.

V. OF THE HYSTERIC CHOLIC.

THE *Hysteric Cholic* is rather a symptom of the hysteric passion, than a particular disease. It is accompanied with violent pain about the *scrobiculum cordis*, and a discharge of *green humours* upwards, quick weak pulse, difficult respiration, great dejection, and sometimes delirium. This sort of cholic is peculiar to hypochondriac men, as well as to hysteric women. It often terminates in a jaundice, which goes off spontaneously.

From Dr. Pierce's *Memoirs* we have the following Cases. I. " Mrs. Farier of *Norwich*, aged thirty, was sorely afflicted with this sort of cholic. She had tried variety of regimens, to very little purpose. She had been sufficiently vomited and purged.

" I ordered her three pints of water at the King's pump next morning. She enlarged the quantity to four or five. When she was constive, she had opening stomachic pills. After drinking some time, she bathed, had her stomach pumped, and was at length sent away so

“ well, that she continued free from violent pains
 “ all the following winter and spring. She re-
 “ turned next summer, nevertheless, to confirm
 “ the health which she had got.”—“ Many more
 “ instances of *Histeric Cholicks* cured by water-
 “ drinking and pumping might be produced, but,
 “ for brevity’s sake, are omitted.”

2. From *Guidot’s Register* we have the following. “ Edward Wyke of *Westminster*, a gentleman

Guidot’s Cases. “ much troubled with the *spleen* and
 “ *cholic*, came to Bath July 1688, so
 “ full of pain, and so weak, that he
 “ went crooked. He was scorched with continu-
 “ al fever and thirst.

“ He drank the waters as much as he could
 “ bear for many days. After one month he en-
 “ creased the quantity, and thus recovered, for
 “ which he gave public thanks in the church of
 “ St. Peter and Paul.”

VI. OF THE DRY BELLY-ACH.

PAULUS AEGINETA who flourished about the fourth century, seems to be the first who described this cholic, *Lib. iii. cap. xviii. pag. 31.* From his days to those of Francis

History of the disease. Citesius, physician to Henry the fourth of France, this disease was partially described by various authors. Citesius was a Poictovien by birth. This disease then raging in that province, he applied himself to the study of it with uncommon assiduity, treating accurately of its origin, symptoms, cause and cure; he gave it the name, by which it since has been commonly known, *Cholica Pictorum*; tho’, with equal propriety, it may be called *Cholica universalis*; for there is hardly a corner of the globe but what has

has felt its direful effects, with this distinction, that in warm countries it seems rather epidemic, in cold accidental. From the days of Citesius to those of Boerhaave, we meet with hardly any thing equal to what Citesius wrote. Boerhaave lectured on it in his annual course with great accuracy and judgment. In the year 1724, an epidemic cholic raged in the west of England. In the year 1738, Dr. Huxham published his most valuable *Opusculum de Morbo Cholico Damnoniorum*. Since that time, many others have written on the same subject. In his *Ratio Medendi*, published 1761, De Haen bestows a chapter on this disease, by the common title, *Colica Pictonum*.

FOR an accurate catalogue of symptoms, I refer my reader to Boerhaave's *Aphorisms*, Huxham's *Opusculum*, and De Haen's *chap. xxiv.* *Symptoms.* Sufficient it may be for me to observe, that men in health are attacked with most excruciating pains about the region of the navel. The deltoid muscles seem to vanish; the joint of the shoulder seems only to be covered with a skin. The fleshy part of the hand which covers the first phalanx of the thumb, wastes away. The whole muscular fabric decays; the arms hang useless, like flails; respiration labours; the eyes lose their lustre; the complexion grows wan; nausea, vomitings, costiveness, constipation, melancholy, and despondency succeed.

THAT this cholic proceeds from poisons, we cannot doubt; *miners, plimmers, founders, painters* and *potters* are subject to this disease. *Causes.* In his *Academical Praelections*, Boerhaave was of this opinion. “Frequentes habui “occasiones mirabilem hunc morbum videndi; “et licet non negem illum ab aliis causis nasci “posce, tamen frequenter observavi in illis qui

“plumbo fundendo, cerussam preparando, &c. operam debent.”—Hoffman describes those cholics which afflict the German miners in calcining and separating the lead from the ore. Wines sophisticated with *sacharum saturni* bring on the dry belly-ach. To give their wines a better flavour and higher colour, wine merchants mix them with sugar of lead. This was the common custom of wine merchants in *Germany*. Boerhaave tells us that some of them were hanged for the offence. In his *Praelections*, he says, “*Observavi hunc morbum frequentem in opulentis, qui exquisitissima vina magno satis pretio redemerant, forte plumbo edulcorata, uti novimus olim a fraudulentis oenopolis in Germania factum esse.*” Universal consent allows this *paralysis, paresis, remissio, or lameness* to proceed from a translation of morbid matter derived from the intestines, or rather mesentery, by the interposition of the nerves. *Ægineta*’s authority confirms this. “*Nostris temporibus, colicus quidam dolor molestus fuit, ex quo imprimis superstites futuros artuum motus omni modo privatio sequebatur, critica quadam metastasi factae.*” This seems to countenance the opinion of those who maintain the conveyance of nourishment by the nerves, allowing the blood vessels to serve only for containing the stream that keeps the *Autopœtor* in motion. Whether this paralysis proceeds from transposition of morbid matter, or from that wonderful susceptibility or sympathy of parts, seems yet undecided, nor can it well be determined. Sufficient it is for us to be instructed, that there are five pair of nerves arising from different places, and (after wonderful complications) distributed among the muscles which belong to the humerus, arms, wrist, and fingers.

fingers. Sufficient it is for us to know, that there is a nerve which communicates with these five, together with the nerves of the *small guts* and *mesentery*. Our bodies are, as it were, one sheet of nerves. Nerves form the very papillae which serve the purposes of taste at the point of our tongue, and of feeling to our fingers ends. Ignorants vainly place their hopes in local applications, while those who are versed in anatomy strike at the root. How beautiful that candid confession of that illustrious follower of nature Boerhaave ! “ Well do I remember where the “ opinions of the antients stood me in stead, and “ (with joy) do I confess; that sometimes have I “ cured palseies of the extremities, the consequen- “ ces of that disorder called the *Colica Pictonum*, “ while I applied *frictions*, *aromatic plaisters*, &c. to the abdomen alone.”

THAT Dry belly-achs proceed from apples and cyder, Huxham has evinced. “ *Diuturnum ci-“ bi potusque pomosi usum an abusum dicam,“ causam fuisse hujus morbi nullus dubito ; quia“ neminem vidi eo correptum qui his abstine-“ rat.*” This disease (he says) raged chiefly among the poor, who almost lived that year on apples, of which there was such a harvest, that the hogs fed on apples, and were infected with the same cholick. “ *Sed et hoc etiam porcorum“ genus male tulit pomorum ingluviem : conta-“ buerunt omnes, perierunt plurimi.*” About the harvest, he observes that cholicks are endemic and epidemic in the west; as Horace, of old, observed. “ *In his oris, morbi torminosi sunt quasi“ endemici et epidemici, omni fere autumno, ut“ olim cecinit Horatius*

“ *Pomifero, grave tempus, an 10.*”

DRY BELLY-ACHS proceed also from fevers imperfectly cured. Dr. Tronchin quotes several examples from Fernelius, Ballonius, Spigellius, Charles Piso, Citesius, Riverius, Willis, and his own experience in an epidemic fever which raged at *Amsterdam*, in the year 1727, and some years after.—He mentions instances of dry belly-achs and cholics consequences of *gout* and *rheumatism*, from the authorities of Constantius Africanus, Gaddesden, Duretus, Fonseca, Mercurialis, Musgrave, and his own experience.—Obstructed Perspiration has also produced the dry belly-ach, as we learn from Sanctorian experiments, as well as from the experience of the same Tronchin. This ingenious author gives instances of dry belly-achs proceeding also from *scurvy*, *melancholy*, and *passions of the mind*.

IN a letter from *Senac* to this author, we find an ingenuous confession, that after dissecting about fifty persons who died of this distemper, he could find nothing that afforded any light. When the disorder takes its seat in the nerves, or animal spirits, what light can we expect from anatomical dissection? Finding the nature of the disease abstruse, and the method of cure contradictory and temporary, *De Haen* applied himself to the investigation of that cardinal symptom, which produces the paroxysm, *Constipation*: to this he rationally directs the cure. “ Morbum
“ vidi, tractavi, recentem, proiectum, diuturnum, annosum, cum omnibus suis variantibus
“ symptomatibus, concomitantibus, aut sequentibus. Hinc didici ab inimica causa intestina
“ vehementer constringi, faeces in iisdem constentas, exsuccas durasque redi, tum etiam a
“ cellulis vehementer contractis, *Colo* potissimum
“ in intestino, in parvos eisdemque oblongos,
“ globos

“globos formari : demum vero, tum colon maxi-
“me, tum et *Ileum* cum suis exsuccis duris-
“simisque contentis, in solidam veluti massam
“coire, omniaque vasa & nervos comprimendo,
“ferocia illa tormenta producere. Haec morbi,
“si demum vera *Pieltonum colica* dici debeat, justa
“idea, vera imago.”

SOUR PUNCH has been numbered among the causes of the dry belly-ach ; and perhaps, sometimes not unjustly. On different constitutions, the same aliments and the same medicines act differently. I can eat half a pound of honey without being griped. I know others who would undoubtedly be thrown into severe cholics, by a single tea-spoonful. One man's meat, we say, is another man's poison. About thirty years ago, strong sweet punch was the beverage of the *West-Indies*. Dry belly-achs were then very frequent. Weak sour punch succeeded ; dry belly-achs have not been near so common. In spite of experience, West Indians, now begin to dread the acid. In the garrisons of *Minorca*, *Gibraltar*, and on board our *ships of war*, oceans of punch have been drank. Dry belly-achs were no more frequent in these garrisons, and on board these ships, than in other places. In hot countries the mass of blood is melted down ; those who are not actually attacked with putrid bilious fevers, are in an incipient state of putrescence. What can resist putrescence so effectually as that rich flavoured vegetable juice of ripe limes, assisted by the finest sugar, and the choicest spirit ! What so grateful to the parched throat ! In the *Caribbee Islands*, the ladies, remarkable for temperance, drink this beverage all the day long. Women seldom are infected with this disease ; never, I verily

verily believe from this cause; and men rarely, if ever. This is not altogether my own sentiment; there are many who will bear me witness. I have leave to mention the name of one man of good sense, strict probity, and well versed in the study of physic, I mean Governor *Bell*, who resided many years in *Africa*. From the whole of his conversation, and experience, he declared that while he last commanded at *Cape Coast*, he was, for three long years, parched up with a consuming slow fever; nothing was so grateful to his stomach as sour weak punch. In this he indulged to the surprize of those who were about him; nay, he often drank off whole goblets of fresh lime juice; so far from suffering, he verily believes that this, more than any thing else, contributed to save him from total putrefaction. I could name one who has drank as much hot sour punch as would fill our greatest bath, and now enjoys good health. I could name scores who have been afflicted with the dry belly-ach, and no man can guess at the cause. Sour punch may therefore be added to the long list of *vulgar errors*.

HAVING pointed out the disease, we now proceed to the cure. As the causes are various, so

Cure. must the indications. If bile *vellicates*

the nerves, the morbid matter is to be evacuated by vomits and purges. The belly must be fomented without, and lubricating within. *Semicupia* are of great use. The parts are to be dipped in medicated springs. *Chalybeate* waters, riding, and change of air complete the cure.

HUXHAM (in his method of cure) condemns *bleeding*, from experience. How beautiful his confession! “ *Fateor equidem*

Huxham's method. “ *me cum antequam morbi naturam*
“ *perspexeram, quibusdam sanguinis missionem*

“ *im-*

“ imperasse: omnes enim hi in grave animi deli-
 “ quum inciderunt.” — In pains of the back and
 joints he tried it: “ Infausto ut plurimum eventu;
 “ omnes fere paralitico effectu correpti vim pror-
 “ sus motumque manuum perdiderunt.” What
 makes particularly to my purpose is his opinion of
Water external and internal. “ At ne sic quidem
 “ alvus respondet, totum abdomen foveri jubeo
 “ fomento emolliente. Hoc *blando vapore abdominalis*
 “ integumenta penetrat, ac intestina ipsa demul-
 “ cet, rigidas emollit fibras, easque nimis tensas
 “ relaxat. Mirandum plane successum saepè no-
 “ tavi ex applicatione hujusmodi R. Rad. Alth.
 “ *Sen. Lin. &c.* Affectus longe feliciores expec-
 “ tandi sunt, si aeger in *semicupium* demittatur ex
 “ iisdem paratum. Haud raro profecto vidi sae-
 “ vissimum paroxysmum *nephriticum* solo *balnei usus*
 “ derepente solutum, cum nec praelarga sangu-
 “ nis missio, nec laudani doses vero profecissent
 “ hilum.

“ Ad hunc morbum profligandum non solum
 “ primas vias purgare necesse est, diluenda est in-
 “ super sanguinis acrimonia salina. Inter diluen-
 “ tia *αριστον μεριν Τσαρπ.* Ex omnibus *Aquis* laudo
 “ *Pyrmontensem* aut *Spadanam*; haec siquidem
 “ principio praedita chalybeato, non tantum sales
 “ optime dissolvi, sed et crasin sanguinis firmat,
 “ ac fibrarum tonum roborat. Qui consensum
 “ intestina inter et cutim observaverat, haud ita
 “ multum obstuperet videndo tum colicos dolo-
 “ res, tum rheumatismos, post sudationem peni-
 “ tus fere sublatos, pro tempore saltem; frequen-
 “ ter enim sudores sponte erumpentes hanc aegri-
 “ tudinem allevabant admodum.” In confirma-
 “ tion of which Baglivi (*Cap. De Colica*) says,
 “ *Colica habitualis et endemica, a vino acido praefer-*
 “ *tim*

“ *tim oriunda, solis sanatur sudoriferis, vespere tam
men interposito anodynō.* ”

“ Post sudationem diluentia, prae ceteris au-
“ tem *Aqua ferruginea* purissima diu potanda, ut
“ corruptae nimirum nova puraque materia ad-
“ misceatur, ut debitus servetur sanguinis fluor,
“ et ejus corrigatur acrimonia.”

AFTER running over the different methods of cure laid down by almost all the authors who wrote on the subject, De Haen communicates one process of cure spirited, sagacious, rational, and judicious.

De Haen's method. Mensē April 1757, homo viginti et aliquot an-
“ norum in nosocomium nostrum ferebatur. Pa-
“ roxysimum presentem horruimus omnes, vomi-
“ tus, dolores intolerabiles, ejulatus, convulsio-
“ nes toto corpore violentissimas, epilepsiae in-
“ star, et spasmodum maxillae. Nudato abdomine
“ quid veluti convelli, convolviique in abdomine
“ cernebamus, quod ipso tactu durum.—Mede-
“ lam sic institui, Emplastrum paregoricum ven-
“ triculi regioni admovi; oleum lini tepidum fre-
“ quenter injici curavi; emulsa camphorata &
“ paregorica, subin ipsum oleum ore sumenda de-
“ di. Cataplasma emollientissimum toti circum-
“ volvi abdomini; et quia abdominis compressio-
“ manu facta videbatur lenire dolorem, cataplas-
“ ma hoc fasciis abdomen comprimentibus firma-
“ ri curavi.—Horum usu alvo prodiere (ut in per-
“ fectissima *Colica Pictonum*,) rotunda, dura, parva,
“ *Scybala*, eaque copiosissima; quibus tandem ma-
“ teries pultacea successit. His demum paroxys-
“ mus filuit, neque rediit; ita ut miser, a bien-
“ nio, non meminisset tantae doloris absentiae.
“ Durities in abdomine percepta mole decrevit,
“ vires rediere, appetitus, somnus. Legit vel
“ ambulat, tota die hilaris. Alvo autem quo-
“ dam

“ dam die carens, initia deprehendit repetituri do-
“ loris ; enema oleosum dolorem quidem solvit,
“ sed denuo parva, rotunda, dura *Scybala* prodi-
“ ere. Non ablata ergo causa, diaeta lactea vi-
“ debatur curam absolutura ; cujus experiundi
“ gratia, hominem diu in nosocomio servasse, ni-
“ prae morum intolerabilitate, ejiciendum fuisse.
“ —Tribus aliis eadem cura successit ; expurga-
“ tis quippe sordibus, lac copiosum, assiduum-
“ que, nervos et sufficienter molles, et debite for-
“ tes facit. Ter quater in anno relapsos lac de-
“ mum incolumes servavit.” —To this pattern
of practice, let us add his generous confession and
opinion. How often are we ignorant of the na-
ture and seat of poisons ? How often have the
poisoned died after the whole artillery of purges,
vomits, diaphoretics, and alteratives has been ex-
pended ? “ Catholica methodus utendi *aqua cali-*
“ *da*, lacte multo, *aqua mellita*, oleoque, copio-
“ sissimis omni modo applicatis, interne, externe,
“ ore, ano ; haec inquam noto et ignoto veneno
“ ex-aequo prodest. Scalent exemplis volu-
“ mina.”

FROM the testimonies of almost every author
who has treated disorders of the intestinal tube,
we find waters internally and externally
recommended. In my first edition, *Conclusion.*
(speaking of Dr. Huxham's most valuable trea-
tise) I expressed myself thus, “ Had this judicious
“ author been but as well acquainted with the
“ principles and virtues of Bath waters, as he
“ seems to be with reason, sagacity and books,
“ he would have found the thread of his labour
“ often cut short ; he would have been convinc-
“ ed that Bath waters surpass all the hopes which
“ he judiciously places in their succedaneums.”
In a letter of that gentleman's now before me,
(after

(after acknowledging great benefit received by the *Master Plummer* and *Brasier* of *Plymouth-Dock*, in a severe cholic, attended with a paralysis of hands and legs) he expresses himself, to the credit of our waters, thus : “ More than thirty years ago, I very well knew the use of your Bath water, in a *paresis*, or weakness of the limbs brought on by cholical disorders, especially that from the *Cyder-cholic*, and have, I believe, first and last, recommended thirty or forty patients to the use of the waters on that account ; many of whom received very great advantages ; some were more relieved by bathing in the sea ; probably, I may soon have it in my power to recommend more.” —— Most of the treatises which have been written on the dry belly-ach, have been published many years. *Boerhaave’s Aphorisms and Commentaries* are in every body’s hands. This disorder commonly passing by the name of the *West India cholic*, seems still but little known in this country. Cases mistaken for gout and rheumatism, have been treated in the anti-phlogistic regimen ; after the regular torture of months, miserable cripples have been abandoned as bewitched. To obviate mistakes, I have taken some pains, not only to give the reader a general idea of the disease, but to point out those authors who have treated it in a masterly convincing manner. When the dry belly-ach has baffled the most judicious, and most experienced, our baths have been loaded with crutches. To facts I appeal.

I. “ The Rev. Mr. Pilkington of *Lincolnshire*,
 Pierce’s Causes. “ aged thirty-three, lived near the fens.
 “ After a fit of the cholic, he was
 “ crippled, and emaciated all over, his
 “ hands hung like flails.
 “ I put him on a course of drinking. He
 “ staid six or seven weeks, went away much
 “ mended,

“ mended, returned next year, and compleated
“ his cure.”

2. “ Miss Kiblewhite, afterwards Lady Ken-
“ rick, was violently pained in the bowels and
“ limbs, joints and musculous parts, so tender
“ that she could not bear to be touched. She
“ had convulsions and hysterick fits. She was
“ withal emaciated to a skeleton. She had gone
“ through the *materia medica*, by the direction of
“ the celebrated *Willis*. With no little labour
“ she was conveyed hither in a litter, positively
“ against the Doctor’s opinion.

“ She was dropped down into the bath in a
“ kind of cradle. By the bath she found some
“ ease, but no strength or stomach. She was
“ therefore put upon drinking. She used *chaly-*
“ *beates*, *antiscorbutics*, *cephalics*, *anodynes*, *cordials*,
“ and *hysterics*. She had ease by bathing in the *Cross-*
“ *Bath*, and drinking at the *King’s-bathing-pump*,
“ but no strength till she bathed in the *Queen’s*,
“ and *King’s*. She came three or four years fol-
“ lowing at first, then at four years distance, and
“ at six, bearing children mean while. In her
“ total enervation the optic nerves suffered with
“ the rest; but as her limbs came to be restored,
“ so was her sight strengthened.”

3. “ The Lady Marchioness *Normanby* was sent
“ hither in May 1688. From a bilious cholic,
“ her hips, knees, ancles, feet, arms, and fin-
“ gers were contracted. When her joints at-
“ tempted to be stretched out, she roared out with
“ pain. Her ancles were drawn inwards.

“ She began with drinking. After a fortnight
“ she was put into the *Cross-Bath*. She had been
“ used to opiates, which when we dared to leave
“ off, she began to get ground. She suffered her
“ legs to be laid streight, and to be set upon her
“ feet,

“ feet, her ankles turned not out so much ; she
“ began to feed herself. These little alterations
“ were all we dared to boast of after three months
“ trial, at which time (the season being hot, and
“ therefore unfit for bathing) her ladyship return-
“ ed, lying on a bed in the coach.

“ After her return, she arrived to a con-
“ siderable pitch of health, strength, and active-
“ ness, to which I was an eye-witness the spring
“ following.”

“ It were tedious (adds the Doctor) to give
“ every case that I could instance on this head.
“ Let it suffice to name the persons, who found
“ cure in the same disorder, since there was but
“ little difference in their symptoms, and method
“ of cure.”

4. “ Mrs. Beare of *Devonshire*, received great
“ benefit, after four seasons. — Lord Thanet
“ cured in three months.—Mr. Petit of *Reading*
“ cured. — From *Ireland*, Sir William Davis,
“ Lord Chief Justice of *Ireland*, recovered. Sir
“ William Tichborn recovered after several trials.
“ Sir John Cole recovered after several trials.
“ Alderman Best of *Dublin*. Captain *Harrison*.
“ —From the isles of *Guernsey* and *Jersey*, Ma-
“ dam Patriarch, after several seasons, cured. Mrs.
“ Martin had a remarkable speedy cure. Peters,
“ a Surgeon, *cum multis aliis*.—From the *Carib-
“ bee Islands*, Colonel *Hallet*, Richard his bro-
“ ther, Mr. *Bond*, and many others for the same
“ loss of limbs from the *dry belly-ach* (as they call
“ it) were here relieved, if not perfectly re-
“ stored.”

Let us hearken to *Baynard*. “ I have visited
Baynard. “ *Bath* for thirty-six years, and have
“ seen wonderful and most deplorable
“ cases there cured, and some in a very little
“ time

“ time (where care and caution has been observ-
 “ ed) especially in the *West India Gripes* and *Cho-
 “ lics*, where a *paralysis* has been general, and o-
 “ thers with arms, hands and legs strangely con-
 “ tracted.”

1. From Guidot's *Register* we have the follow-
 ing. “ Peter Bonamy, Sub-dean of Guernsey,
 “ three years troubled with the *cholic*,
 “ and loss of limbs. There was a scor- *Guidot's
 “ butic taint* also, by which the skin *Cases.*
 “ was infested with pustulous eruptions, the fin-
 “ gers contracted, the internal muscular flesh of
 “ of the thumb wasted, with paleness and lan-
 “ guor.

“ He used the temperate Baths for a month at
 “ first with considerable relief, the second season
 “ more, and, after four years absence, he return-
 “ ed with an athletic habit of body.”

2. “ Moses Levermore, Surgeon, of *Nevis*,
 “ afflicted with the *belly-ach* and *palsey*, by the use
 “ of the *King's* and *Cross-Baths* received cure. I
 “ saw him well in London 1688.—Elias Pome-
 “ roy of *Devon*, had the same disease, and same
 “ cure.”

1. The case of Miss Menzies of *Dumfries*, was
 as bad almost as any of the preceding, with this
 singular particular. Every three weeks
 she was taken with a *cholic* fit which *Author's
 “ Cases.*
 lasted ten or eleven days and nights,
 with racking pain. During this *paroxysm* she
 could neither eat nor drink, she lulled her misery
 with laudanum. Under Dr. Gilchrist's judicious
 care she had tried every regimen.

Two or three days after she arrived at Bath, her
cholic *paroxysm* came on. I advised her the free
 use of laudanum, and nothing else. Immediately
 after her fit she began the water, which prevent-
 ed

ed the return of the cholic. She bathed also. This regimen she continued for five or six months with great advantage. Going out to the ball one night, and taking off the flannel rollers which swaithed her swelled legs, she catched cold, and had the first return of her pain. She continued eight months in all; the muscles of her thumbs plumped up, she wound up her watch, wrote half a dozen letters a day, and returned almost well. She took no other medicine but an opening pill.

2. Mr. Fletcher of *Kent*, was often here for the same disorder. His cholic pain yielded almost instantaneously to the waters, though his hands did him little service.

3. Mr. Bennet, son to a schoolmaster near *Ware*, came to Bath in this disorder. During his stay he had a severe fit with racking pain, constant vomiting, costiveness, &c. Sharp glysters, purges, fomentations, semi-cupum's, and all other common aids were administered; to no purpose. Deliberating on some medicine that might remove the spasm, and operate briskly, without loading the stomach, or provoking vomiting, I happily fixed on the following, *Resin Fallap gran. x. Merc. dulc. l. crass. gran. vii. Extract. Theb. gran. i. m. f. pilulae statim sumend.* Soon he voided one plug of excrement which was black as a cinder, and so hard that it rebounded like a ball from the floor, with an immediate relief from pain, vomiting, and every other dangerous symptoms. By the use of gentle soft purges, the passage was kept open, till he recovered strength. By the internal and external use of the waters, he recovered of this disorder, together with the supervening small-pox; and is, as I am told, now alive, and in good health.

4. Captain Arch. Millar of the navy, came from the conquest of *Senegal* afflicted with the loss of limbs, and other symptoms common to this disorder. In a very severe fit attended with costiveness, pain, vomiting, &c. I was called to consult with Doctor Gusthart, his first physician. Purges, glysters, baths, and other methods had judiciously been tried. Calling to mind my success with the last patient, I proposed the same, which was immediately agreed to, and administered with the same success. In about six weeks, by the use of Bath waters internal and external, he recovered flesh, strength, appetite, and sleep. Riding out one day in an open chaise, and caught in a shower, he relapsed, and was attacked with a fit, not quite so threatening as the former. Dr. Barry and I were both called in. Various remedies were tried, the constipation, pain, fever, vomiting, and every symptom waxed worse. The patient requested the pills which had formerly relieved him; they were administered, and with the same success. The Bath waters afterwards completed the cure. For several years after he served with credit, and now enjoys perfect health.

5. Captain Scroop of the navy, came to Bath for the same cholic. While I attended him, he was taken with a fit as severe as the former, with this addition, that by straining, he had a falling down of the great gut, which, constricted by the sphincter, could not be totally reduced. The same pills were administered, and with the same success; but before the passage was obtained, a portion of the great gut was actually mortified, and cut off by Mr. Wright, surgeon of this city. What was singular in this gentleman's case, he voided thin large bilious stools, without

without one bit of hard excrement ; this obstruction was the real effect of spasm relieved by the opiate. By the use of the Bath waters he had a complete cure, and, to the end of the war, did honour to his station.

6. From the hand-writing of Mr. Anthony Jones, student of *Oxford*, the following case is printed. " For some years past I have been afflicted with a pain in my heels, which frequently shifted to my stomach ; for these two years last, my stomach could never be said to be free. My last fit began in February, and continued till May, with perpetual reachings of green and yellow bile. At *Oxford*, my disorder was unhappily treated as gout. I swallowed the hottest medicines ; rum was to me no warmer than pump water. Violent pain attacked the muscles of my shoulders, gradually descending till it deprived me of the use of both arms. My skin became so tender that the softest touch was insupportable ; my voice was small and feeble ; my eyes dim, with total relaxation. In the most deplorable condition I was carried to Bath, where (by six months perseverance in the use of drinking, pumping, and bathing) I have recovered so well that I daily ride out, eat, and sleep ; and though I have not yet recovered the perfect use of my limbs, yet, by the divine permission, and efficacy of the waters, I doubt not of enjoying a complete cure. October 22, 1761."

7. George Cruikshanks, Esq. while he lived at *Amsterdam*, was more than once afflicted with this cholic, for which he was bled, purged, and otherwise injudiciously treated, the disease then being new in that country. His fits were of long duration ; with great danger he escaped. For remain-

remaining pain, relaxation, and lameness, he made use of the Bath waters, and with great benefit.

8. Mr. Edward Gregory, Captain of a Guiney ship, lived on that coast fourteen years, during which he was often attacked with this disease, and never completely cured. Last year he came to Bath, emaciated, and deprived of the use of his hands, and frequently attacked with pains of his bowels. By four months bathing and drinking, he recovered, and is now on a voyage to the same coast. One circumstance he communicated to me, which I think it my duty to communicate. On a voyage to *Rhode Island*, at the time of his landing he had been fourteen days without a stool, racked with pain, helpless, and hopeless. Mr. Forbes, a practitioner of that island, coming on board, asked the Captain, if he had any good Castile soap, which being produced, he said, never fear Captain, I will cure you in a crack. Shaving some of the bluest part of the soap down, he dissolved it in fresh milk, gave his patient two tea spoonfuls, with orders to repeat it in an hour; which he did, and was immediately rid of his constipation, and every complaint, excepting the lameness of his hands. He assured me that this he often experienced on himself, and many others afterwards, and hardly ever without success. Mr. Forbes assured him that it was his common practice, and as successful as common.

IN the annual publication of the *Bath Infirmary*, relative to disorders of the nerves, the general article stands thus, *Lameness and weakness from tumors, contusions, colics, the Infirmary, falls, &c.* From this complex account, little light can be drawn in relation to dry belly-achs, or any other particular disease;

yet, from Dr. Summers's industry, as well as from proper knowlege, we can affirm that there are numbers who annually receive cures in that hospital, particularly miners, or mechanics infected from working in metals. In the years 1763, and 1764, there were twenty-nine dry belly-achs cured, and eighteen *much better*. In Summers's short Essay, we find one pattern truly worthy of imitation ; with this we close this chapter.—

“ In the Infirmary, there is now to be seen
“ a young man of about nineteen years of age,
“ who (after a voyage to these parts) was, two
“ years ago, seized with a West-India cholic.
“ When he was admitted, his arms hung useless
“ by his sides, his hands dropped inwards, his
“ fingers were so contracted, that it was in no
“ man's power to move them ; his legs were con-
“ tracted up to his buttocks, he stood on his
“ knees, and was wasted to a skeleton. By the
“ use of bathing he now walks without crutches ;
“ his hands, legs and arms have regained their
“ wonted plumpness.”

C H A P. VI.

OF DISORDERS OF THE URINARY PASSAGES.

Preamble.IN compliance with fashion, I refer rational deductions of diseases of the urinary passages, to that part which treats of Bristol waters. Suffice it here, in general to observe, that as the same diseases differ in different constitutions, so are the same diseases cured by different waters. “ That water should be expelled by water, that drowned men should be brought to life by being drowned, is a miracle (says Doctor Baynard) that surpasses St. Winefred’s. There are not however wanting instances of hydropsics cured by drinking; a proof how little we know either of nature or art.” With other arts, physic has its fashions; so have wells. In diseases of the urinary passages, Bath waters have answered where Bristol waters have failed. Such, nevertheless, is the force of fashion, that diabetes, dysury, gravel, stone, nephritic pains, gleets, and other diseases of the urinary passages are (by universal consent) consigned to Bristol. If Bristol waters fail, patients are given up as incurable. Mankind, in general, stare at the surface of things. Reformers are upbraided for departing from common practice. In justice to Bath water, I take the liberty, nevertheless, to produce cures of diseases of the urinary passages, some of diseases never before attempted.

1. In Dr. Pierce’s *Bath Memoirs*, p. 364, we find the following Cases. Pierce’s Cases.

“ Sir Thomas Ogle, aged forty, was

“ so frequently pressed to make water, and always with sharpness and pain, that he could hardly be long together quiet, without emulsions, and strong anodynes. He had taken loads of medicines.

“ I ordered him Diacassia or Manna, half an ounce over night, or early in the morning ; and, about seven in the morning, to drink three pints of King’s Bath water. When he took not of the Eleétuary, he drank two quarts ; and, after a while five pints. They gave him usually two or three stools, but past mostly by urine, and did not bring off a great deal of gravel neither ; but manifestly abated the acrimony of urine, so that he retained his water, and made it in large quantities.”

2. “ Mr. Belke, aged thirty, of the Six Clerks Office, had been afflicted with the same distemper. He drank the waters for five weeks. They passed by stool and urine ; he was cured.”

3. “ Sir John Cotton, of *Botrux-castle*, had for many years been afflicted with severe fits of the gravel and stone. He made dark turbid urine, he voided much gravel and stones of considerable bigness and craggedness, which, by lacerating the vessels, occasioned bloody water.

“ I began with a purging nephritic bolus. He drank three pints of water, which, by degrees, he increased to two quarts. Never did waters agree sooner, pass easier, and better. He brought off great quantities of sabulum, and small stones rough and scabrous, bigger than barley corns, but friable. He held so well all the winter, that this encouraged him to return next summer, and drank them till the fabulous matter ceased, and he was free from fits.”

4. “ Mrs.

4. " Mrs. Elizabeth Carne, aged seventy-two, hath been subject to nephritic pains almost fifty years, with frequent fits, and voiding of large rough stones. Every time she finds the least pain or disorder in the region of the kidneys, she drinks three pints or two quarts of the King's pump-water, in a morning, be the season what it will, and continues till she voids gravel or stones of a greyish colour, one of the worst colours, which gives her ease."

5. " The second wife of Captain Henry Chapman of this city, was used, of her own head, to go and sit three or four hours in the hottest part of the King's Bath, and drink largely of the water. To this she imputed the bringing off the stone easier. She is now living in the 80th year of her age."

6. " Mr. Smith, steward to Lord Digby, was horribly decrepid with gout and stone. He had a perpetual desire of making water, with great sharpness, pain, and stoppage for days together. His joints were knotted with the gout.

" By drinking, he daily discharged vast quantities of gravel, stones, and mucous matter. He bathed, not by my consent. The nodes of his toes, fingers, and knees began to look red and soft. Some of these tumors opened of themselves, others were laid open. The concreted chalk was picked out little by little. He began to set his feet to the ground, bend his knees, support his body, handle his crutches, and at last walked with a stick."

7. " Mr. Edward Bushel, senior, Alderman of Bath, aged seventy-three, laboured for eleven months under torturing nephritic pains. At last he made bloody water, which encouraged him to try the water. His common dose is a

“ quart every morning with a spoonful of syrup of marshmallows. This doing for nineteen months together, he had perfect ease. By drinking stale beer, he now and then relapses, but his pains are not so violent. I have often heard him say, how miserable a man had I been, had I lived any where but at Bath.”

8. “ Mrs. Studley, of *All Cannings*, had long been afflicted with continual urgings to make water, smartings, and violent pains, with small streaks of blood, with a heavy ropy sediment, which stuck to the bottom of the pot like bird-lime, and stunk abominably. By drinking she found ease. She bathed also, and found benefit. Business called her away too soon.”

“ Not a few (says the good old Doctor) have been cured, by regularly drinking the waters, of inveterate virulent gonorrhoeas, and of those weaknesses which they usually leave behind them; for Bath waters cleanse, heal, and strengthen the parts concerned, and (as in all other acidities, acrimony, and sharpness of the blood and nervous juice) they correct that corrosiveness, and dilute that acrimony, and consequently alter the temper of that matter that is discharged, and, by its balsamic virtue, heals the parts excoriated.

“ This remedy will indifferently serve for the softer sex also, who (though they call it by another name) are too much liable to the same distemper. I dare not give instances, though I have them by me.”

Guidot's Cases. Guidot (in his *Bath-Register*) gives the following cases.

9. “ Mr. Thomas Brookes, minister, sixty years old, having for sixteen years a gravative pain in the back and kidneys, came to Bath, where

“ where he drank the waters, and voided fine powder, which subsiding in the urinal, and evaporated *ad siccitatem*, made eight pills as big as pistol bullets, of the colour and consistence of stone. At his return home he evacuated as much as made forty-four more. All the matter voided, in no long time, was enough to make a ball of stone six ounces weight, which coming away, the heavy pain in the kidneys and back ceased. Seven years after, I saw these balls not at all relented, so hard that they rebounded like marbles.”

10. “ A certain person unknown, for benefit received in distempers relating to the passages of urine, gave public thanks in the church of St. Peter and Paul, 14th of October, 1688.”

DIABETES.

OF this disorder, I purpose to treat particularly, under the head *Of Diseases cured by Bristol Waters*. The following history is printed from the hand-writing of Captain Chaplin, of the Navy, the very first proof of its kind.

11. “ To the honour of Bath waters, as well as testimony of the prescriber’s judgment, I desire the following case may be published.

“ About the latter end of the year 1761, the time of our equipping for the expedition to *Belleisle*, I began to find myself troubled with an unusual heat in the palms of my hands and soles of my feet, with great thirst and restlessness at nights, attended with a surprising loss of flesh; though my appetite and digestion continued very good.

“ Things continued thus all that winter—In the ensuing summer I was employed on a service, that obliged me to be a good deal exposed in the sun, at the demolition of the fortifications at *Aix*; by way of cooling, I used to indulge in drinking Cream of Tartar and water, or a thin sharp French white wine and water. Neither of which, tho’ pleasing whilst they went down, allayed either my drought or heat: but I am afraid rather serv-ed to encrease the whole of my complaints.— In the latter end of that year my sloop was ordered to the Mediterranean, where I remained twelve months;—there I found my heat and drought greatly abated. I perspired more freely than I had used to do for some time; began to rest better at nights, and to recover my flesh. But on my coming to England this time twelve month, all my former complaints returned with more violence than ever, with the addition of an hectic fever. It was then the opinion of every body that I was in a deep consumption, though I had very little cough, unless now and then, when I caught a fresh cold. I was advised riding and the gout-whey, when the season should come, both of which I followed to very little purpose, and was at last forbid riding intirely, as it was found to fatigue me too much.

“ In the month of last August, it was first ob-served, that my urine was of a very pale colour, of a sweet taste and smell, and that I voided more of it in the space of twenty-four hours, by two pounds, than I took of liquids; in short, my dis-order was found to be a confirmed *Diabetes*.—I was then advised to hurry to Bristol to drink the Hot-well waters. I accordingly got there about the middle of September last, and continued, with-out intermission, daily to drink them, and take medicine

medicine, for twelve weeks, without much benefit, unless, that in the first week I found the parchedness of my mouth, and great drought somewhat abated, as also the quantity of my urine, but my flesh and strength continued to waste.—At the end of that time, that is, about eight weeks ago, I came here to see you, without any thoughts or intention of using the Bath waters, when you advised me to come over and try them, which I accordingly did, and have (thank God) benefited by them so much, as to have intirely got the better of all my complaints, as also to have recovered my flesh and strength to a surprising degree; for which great blessing I shall always remain, with the utmost gratitude and respect,

Dear Sir,

Your most obliged,

And most Humble Servant,

Feb. 7, 1764.
To Doctor Sutherland.

James Chaplin.¹²

12. Mrs. Fleming's Case will be particularly described in that chapter which treats of *Diabetes*. This winter all her diabetic symptoms returned with violence, her appetite, flesh, and strength failed; she hardly could stand on her legs; in a word, no body expected that she could live one month. I pressed her return to Bristol Hot-wells, went so far as to assure her that her life was at stake. My arguments were vain; she positively told me, she could not go at that time of the year, if she died; she begged that I would

prescribe something that might keep her alive till the spring. Instructed by Chaplin's success, I advised Bath waters with Elixir Vitriol. Every day produced visible amendment; she is now strong and active, without one symptom of her disease, excepting a little of the sweet taste of the urine, and that at an age far advanced.

BESIDES these express cases, the curious reader may find not a few proofs interspersed with the histories of other diseases cured by Bath water, particularly in that memorable gouty case of Mr. Long's.

CHAP.

C H A P. VII.

OF DISEASES OF THE BREAST.

IN Compliance with fashion, I refer particular deductions of pectoral diseases to that part of this book, which expressly treats *Of Diseases cured by Bristol Water*. Suffice it here, in general, to observe, that those who, without evidence, fancy heat, fire and brimstone, synonymous ideas, are incapable of conceiving how smoking waters should be safe in the disorders of the lungs. Those who confine the causes of cough, catarrh, and asthma to inflammation only, hurry away patients to Bristol. If they answer not, the wretched sick is given up to death. In asthmas, the very air of Bath is doomed pestilential. In consultation with able Bath physicians, I have more than once pressed asthmatics, not to tarry twenty-four hours within these walls. Instructed by experience, I now abjure these ignorances. In this very city there lives an upholsterer, *Richard Evet* by name, who chuses his residence at Bath, as the only air in which he could freely breathe, ever since the hard frost 1739. At the age of threescore, he now breathes freely, and enjoys perfect health. Doctor Smollet's Cafe is an irrefragable proof of the doctrine. There are pectoral disorders which yield to Bristol waters only; there are others, which require a mineral more active, invigorating and powerful. There are thin, acrid catarrhs; so are there viscous, cold, and inert. There are hot consuming hectic, so there are putrid. There are consumptions from putrid; so there are consumptions from obstructed lungs.

There are genuine, dry, nervous asthmas; so there are spurious, moist, and catarrhous. Some proceed from irritation; others from obstruction. In some cases demulcents are indicated, in others attenuants. To conclude, Bath waters have cured coughs, catarrhs, consumptions, and asthmas, when all other aids have failed. Let facts speak for themselves.

1. To Dr. Pierce's *Memgirs* we are obliged.

Pierce's Cases. "The Lady Duchess of Ormond, aged
"sixty, came to Bath in September
"1673. Her disorder was an invete-
"rate cough and *asthma*; she was forced to sit
"upright in bed.

"She drank the waters first in small quanti-
"ties. Bearing them well, the dose was increas-
"ed. She drank them on for a month, with lit-
"tle intermission, and so much relief that she
"expectorated more freely, and lay down in bed,
"her appetite increased, she rested better, she
"bore her journey back better.

"Passing the following winter (the season in
"which such distempers usually increase) much
"better, she came again four different seasons.
"Every time she improved the first advantage."

2. "Lady Mary Kirk, aged forty, subject to
"an *asthma*, so that she was obliged to be bol-
"stered up for nights together, came hither and
"drank the waters several seasons following, with
"great advantage, insomuch that in the year
"1693, she had few or no returns of those fits
"which usually attacked her in cold and wet sea-
"sons. In a letter of hers, now in my posses-
"sion, she says that for the whole winter past,
"(which to every body else hath been very se-
"vere) she has not so much as felt an oppression
"at her breast, much less a cough, that kept her
"from

“ from sleeping or eating a meal’s meat ; that she “ goes abroad in all weathers, stays out till nine, “ and rests not a bit the worse. She returned last “ summer, and staid till the latter end of Octo- “ ber, and bathed even in the Hot-Bath as well “ as drank the waters, and did very well.”

3. “ A very worthy Lady, whose name I con- “ ceal, because I have not her leave, between “ 30 and 40 came hither in August, 1693. From “ inheritance she was hydropical, scorbutical, and “ asthmatical. She had gone through the col- “ lege.

“ After a fortnight’s drinking, I permitted her “ to use the *Cross-Bath*, which had a different “ operation on her than it commonly has. It pro- “ moted the passing of the waters by urine ; she “ was more lightsome, and breathed more freely. “ She drank and bathed for a month. Next year “ she used the same course for three months. She “ found great advantage.”

4. “ Mrs. Mary Whitaker, a virgin of thirty- “ nine, from *Pottern, Wiltshire*, came hither in “ May, 1681. The winter before, her cough was “ so violent that she spate blood. In January she “ was seized with a palpitation of the heart, the “ most troublesome symptom of all, and what she “ took to be the cause of her difficulty of breath- “ ing, whereas it seemed to me that the *nervous* “ *asthma* (for such I took hers to be) caused the “ palpitation. The cough was violent without “ expectoration. She wheezed greatly. Upon “ the least motion she looked black in the face. “ Her heart beat as if it would come out of her “ body. She was always hot and feverish, had a “ quick labouring pulse. Her symptoms were “ greatly aggravated by her short journey of 14 “ miles,

“ I ordered the waters with *Sal-Prunel*, *Pecto-*
“ *rals*, and *Paregorics*. This method she con-
“ tinued for a month or five weeks, and was by
“ it perfectly restored, and is alive and well this
“ day.”

5. “ Sir Henry Andrews, of *Loftbury*, aged
“ seventy-one, came hither for a *Scorbutic Asthma*,
“ with the *morpew* on his back, breast, and shoul-
“ ders, and weakness in his limbs.

“ He bathed and drank with such success, that
“ he came year after year, till other illnesses ren-
“ dered him incapable to bear the journey.”

6. “ The Marchioness of *Antrim*, aged sixty-
“ two, had been many years troubled with a cough
“ and shortness of breath.

“ She drank the waters mostly, bathed but sel-
“ dom, continued five or six weeks, was so well
“ the following winter that she was encouraged to
“ come a second time, she prosecuted the same
“ course with better success.”

7. “ Mr. Harrison, of *St. Crosses*, aged eight-
“ teen, had, from his infancy, been subject to
“ coughs and asthmatic distempers, occasioned
“ (as was said) by a *Quicksilver Girdle*. He had
“ a great *palpitation*, and difficulty of breathing
“ on the least motion, not even the ambling of a
“ horse.

“ He drank the waters for a month or more.
“ His breath was freer, the palpitation well-
“ nigh ceased, he rode from near *Winchester* to
“ *Oxford* in a day. He returned a second, and
“ a third time, to confirm the advantage re-
“ ceived.

8. “ Richard, Earl of *Tyrconnel*, came hi-
“ ther in April, 1686. He had been a long time
“ *hypochondriac* and *scorbutic*, but, for some months
“ past, especially in the winter, was seldom
“ free-

“ free from a palpitation of the heart, an inter-
“ mittent pulse, a decayed appetite, and a bad
“ digestion.

“ After various trials, particularly a long cha-
“ lybeate course, he was sent to Bath. I order-
“ ed him *Quercetan's Tartar Pill* over night, and
“ to drink two quarts of King's Bath pump next
“ morning. He increased the quantity by de-
“ grees to five pints, and at last to three quarts,
“ interposing a gentle purge now and then, and
“ two or three bathings. At the end of five or
“ six weeks, he set out chearful and well, with
“ a good appetite, the palpitation almost abated,
“ and the intermission of his pulse scarcely dis-
“ cernible.”

9. Summer 1761, the honourable Edward Finch came to Bristol Hot Wells, after an inflammatory fever, for which he had been bled nine times, and blistered five. *Author's Cases.*
When I first saw him, he had an habitual cough, with a difficult expectoration of tough viscid phlegm, without fever; he was languid, low-spirited, and feeble, fifty years old, and upwards.

I pressed him to go immediately to Bath; I gave him my reasons and opinion in writing, which were transmitted to his physician in town, and by him disapproved. This being the case, I added Bitters to the Bristol waters, with a restorative diet. Thus he recovered strength and spirits; but his asthmatic disorder still continued. At last he took my advice and came to Bath, where he drank the waters six weeks. Every glass proved an expectorant, he went away perfectly restored.

10. Mr. Partridge of the *Packhorse, Turnham-Green*, was subject to gouty complaints from his fourteenth-

fourteenth year. Last January, having caught cold, he was seized with an asthma; he could not lie in bed, his perspiration was stopped, his legs were benumbed and swelled, without appetite. Naturally high spirited, he became so dejected, that he burst often into tears on the sight of an old acquaintance. He came to Bath, drank the waters moderately, and, in six weeks time, was completely cured. He came down this winter by way of prevention, and is very well.

11. Dr. Smollett, author of the History of England, laboured under a scorbutic humoral *Asthma*, for three years and upwards. To breathe he has been obliged to shift different airs, and never continued long well in any. From a constitution healthy, vigorous and active, he became emaciate, low-spirited, and feeble, obliged often to rise out of bed, and sit up for hours; his perspiration was quite stopped, his appetite much impaired. He tried variety of regimens, to very little purpose, was always the worse for bleeding. Caught in one of his fits, he put into the fore-said *Packhorse*, where he met with a director who counselled Bath water, from experience. Here he slept the very first night, and every other, for six weeks, drank the waters, and gained appetite, flesh, strength, and spirits.

12. Mrs. Collins of this city, widow, aged sixty and upwards, has laboured under an *Asthma* for many years. On the least motion she panted for breath, and was taken with violent fits of coughing. Her flesh wasted, her strength failed; by all appearances, she seemed bending fast toward the grave. By the advice of an emperic, she was, at last, pressed to try that healing fountain, which springs up within a few yards of her own house, which she did, to the quantity of a glass.

glaſſ, or two, a day only. She now lies flat in bed, sleeps well, eats heartily, her cough is va- niſhed, ſhe walks a dozen of turns on the parade without being fatigued; whenever ſhe finds a difficulty of breathing, ſhe flies to the pump, and forgets all her ſorrow. She has, at different times, had the opinion of ſundry physicians. To our common reproach be it confeſſed, Bristol wa- ter, bleeding, iſſues, pectorals, and every thing was counſelled and tried, excepting the one thing needful; ſuch ſtrangers are we, even at this day, to the very tools by which we earn our daily bread.

Since my laſt publication, I received the fol- lowing proof from an eminent merchant in Bristol.

“ Some time ſince I had the pleasure of dining with you at my friend Rothley’s, who ſhewed me a letter, dated the 10th instant, reminding me of the paſſe I made you, touching the pro- gress of a disorder I laboured with for a great many years. To be as good as my word, the fol- lowing is a deſcription of my caſe, perfectly true, and too well known in this city to admit of the leaſt doubt.

“ From my infancy, I diſcovered, upon any extraordinary exercise, ſome difficulty of breath- ing, but nothing remarkable ensued, till I arrived to twenty or thirty years of age; about which time ſhooting was a favourite diversion with me; and many times, being too eager in the purſuit of my game, I have been ſeized with ſuch a ſhort- neſs of breath, ſeemingly occaſioned by a blow- ing up of the lungs, that I have been obliged to ſit down, ſometimes for near an hour, before I have recovered; after that, had ſeldom a ſecond attack the ſameday.—About ten years ago, this long

long growing complaint became a confirmed asthma, and during the course of seven or eight years, I endured as much misery from the disorder, as I believe human nature is able to support; the beginning of these seizures were constantly in my first sleep, about an hour after I went to bed, and the fit generally lasted from twenty to thirty hours, and sometimes longer; during which time I was obliged to lie in one continued posture, and my lungs so adhered, that they only supplied just motion enough to give life. Upon the first of these violent attacks I applied to an apothecary of very considerable practice, and of whom I had a great opinion; he recommended me to a physician, and, after a due obedience to their medicines, I found no benefit. I then went to London to the famous *Ward*, he gave me some drops, which for a time lessened the violence and length of the fits, but his nostrum failed of the desired effect; I then laid myself under another course of an eminent physician, who offered me his assistance out of friendship, he being big with the thoughts of success; and after a trial of his skill for 5 or 6 weeks, the disorder had taken too deep root to be eradicated. I then had recourse to Bath, and the night I got there, had a fit of the asthma, as customary, which lasted till the middle of the next day. In the evening I began with a common sized glass of water, and drank three glasses, morn, noon, and evening, the ensuing day; the next attack I had was faint and more favourable than before. I continued this course of drinking the waters three times a day for near a month, and found such amazing relief, that I pronounced myself cured, tho' the next winter I was sensible of the disorder returning again; having several of the old accustomed fits. I went again.

again to Bath, drank the waters as before, and, thank God, found the same virtue in them, and have now for two years continued as well as when you saw me, and may possibly give you occular proof of it very soon, as I have some thoughts of going to Bath for a few days.— I have given you the rise, progress, and (I hope) downfal of my case ; and I shall be very happy, if this narrative, thro' your channel, can be useful to any of your patients.

I am, Sir,

Your very humble Servant,

Bristol, Nov. 18, 1763.
To Doctor Sutherland.

Cranfield Becher, 2^o

C H A P. VIII.
O F T H E G O U T.

1. SYDENHAM's description of the gout, *regular* and *irregular*, seems to be copied from nature. Boerhaave's chapter of *Gout.* the gout (in his *Aphorisms*) is nothing else but an abstract of this. Hoffman has inserted his history in his discourse on this disease. Succeeding writers have mangled a model worthy of imitation. Sydenham seems to be one of those, whom nature has endowed with that sagacity which constitutes the practical physician. Copying the divine old pattern, this second Hippocrates had the courage honestly to break through the clouds of ignorance, error, and prejudice; he gently led the art of physic into that natural path of *Observation* from which she had so long strayed. Those racking pains which he felt for the greatest part of his own life, enabled him to paint what he felt, and thereby relieve fellow-sufferers, by improving the diagnostic and curative parts of medicine.

2. For a work of this kind, the spirit of his descriptive part may suffice. The gout generally makes its appearance at that period of *Regular, its history.* life, when the circulation comes to be confined to a narrower sphere, when manly vigour declines, when the vessels begin to be rigid and impervious. The harbingers of the *Regular Gout* are bad digestion, crudities, flatulencies, belching, heaviness, head-achs, nausea, loss of appetite, heart-burns, and wandering pains. The day preceding the fit, the appetite is sharp, and preternatural.

The

The patient goes to bed, and sleeps quietly till about two in the morning, when he is awakened by a pain which usually seizes the great toe, heel, calf of the leg, or ankle. This pain resembles that of a dislocated bone, and is attended with a sensation as if warm water was poured on the membranes. These pains are immediately succeeded by chilliness, shivering, and a slight fever. These last abate in proportion as the pain increases, which grows more violent every hour, till it comes to its height towards evening, resembling tension or laceration, sometimes the gnawing of a dog; and, at other times, a weight and constriction of the membranes, till it becomes at last so exquisitely painful, that the patient cannot abide the weight of the cloaths, nor the shaking of the floor.

The night is not only passed in pain, but with a restless removal of the part affected also. This restlessness does not abate till about two or three of the clock in the morning; namely, twenty-four hours from the first attack. Breathing sweat succeeds, he falls asleep, and, upon waking, finds the pain much abated; the part affected, which before exhibited remarkable turgidness of the veins only, now swells.

Next day, and perhaps two or three days after, if the gouty matter be copious, the part affected comes again to be pained; the pain increases towards evening, and remits about break of day.

In a few days, it seizes the other foot in the same manner; and, if the pain be violent in this, and that which was first seized be quite easy, the weakness thereof soon vanishes, it becomes strong and healthy. The gout nevertheless affects the foot just seized as it did the former both in respect to the vehemence and duration of pain.

When

When there is a copious fomes of peccant matter in the beginning, it affects both with equal violence; but, in general, it attacks the feet successively, as above. When it has seized both feet, the fits are irregular with respect to time of seizure, and continuance; but the pain always increases in the evening, and remits in the morning.

What we call a fit of the gout, is made up of a number of such small fits, the last of which prove milder, and shorter, till the peccant matter is expelled, and the patient recovers; which, in strong constitutions, and such as seldom have the gout, often happens in the space of fourteen days; in the aged, and those who have frequent returns, in two months; but in such as are debilitated, either by age, or the duration of the distemper, it does not go off till the summer advances.

During the first fourteen days, the urine is high-coloured; and, after separation, or standing, lets fall a gravelly red sediment. Not above a third of the liquids taken in, is voided by urine. The body is generally costive. The fit is accompanied throughout with loss of appetite, chilliness towards the evening, and a heaviness, or uneasiness, even of those parts which are not affected.

When the fit is going off, a violent itching seizes the foot, especially between the toes, the skin peels off, appetite and strength return; the juices come to be depurated, the patient finds himself clearer in his understanding, cheerful and active. Nature has performed her work.

3. WHEN the body has long been habituated to the disease, when it has been exasperated by quacking, the juices acquire a quality which supplies constant fuel to the flame. Debilitated nature can no longer

longer unload her burden by the *feet*, the genuine outlet of the morbid matter; it corrodes the capillary vessels, stagnates and curdles that liquor designed for lubricating the joints. This hardens into chalky matter, distends the skin, inflames, breaks through, and discharges itself in a fluid or solid form. It not only stiffens the joints, but it fixes on the tendons, and forms lodgments in the interstices of the muscles. Hence excruciating pains and lameness. This we call the *Irregular Gout*.

Those particular fits which compose the general, sometimes continue fourteen days without intermission. The patient is besides afflicted with sickness, and a total loss of appetite. The cardinal fit continues till the summer heat comes on.

During the intermission, the limbs are so contracted and disabled, that the patient can hardly walk. The relicts of the morbid matter fly to the bowels; the haemorrhoidal vessels grow painful; the stomach is oppressed with nauseous eructations; the urine resembles that of a *Diabetes*; the whole man is debilitated. Hence low spirits, melancholy, &c.

When the disease becomes inveterate, after yawning, especially in the morning, the ligaments of the *metatarsus* are violently stretched; they seem as if they were squeezed with great force. Sometimes, though no yawning has preceded, when the patient seems disposed to sleep, he feels a blow of a sudden, as if the *metatarsus* was breaking in pieces, so that he starts, roaring out with pain. The tendons of the muscles of the shin-bone are seized with so violent a cramp, that the pain is insupportable.

After many such racking pains, the following paroxysms become less painful, an earnest of approaching

proaching deliveries, by death. Nature, oppressed by disease and old-age, can no longer drive the morbid matter to the extremities. Sickness, lassitude, looseness, &c. usurp the place of pains. These ease the pains, which return as those go off. Thus, by a succession of pains and sickness, the fits are prolonged to an uncommon length. Pain diminishes, the patient sinks at length thro' sickness rather than pain. In a word, pain is nature's harsh remedy, by which she endeavours to relieve herself; the more violent it is, the sooner the fit terminates, the longer, and more perfect is the intermission, and e. c.

Gout also produces stone and gravel. The mind sympathises also with the body. Every paroxysm may as justly be denominated a fit of anger, as a fit of gout. The rational faculties are so enervated, as to be disordered, on every trifling occasion; the patient comes to be troublesome to others, as well as to himself. Fear, anxiety, and other passions torment also, sometimes he swears, then prays, and anon cries.

The organs of secretion no longer perform their functions; the blood, overcharged with vitiated humours, stagnates; the gouty matter ceases to be thrown on the extremities. Death puts an end to misery. This is the history of the gout, *regular* and *irregular*. We now proceed to enumerate the causes which produce the paroxysms.

4. PRINCES, Generals, Statesmen, Philosophers, the rich and opulent are the people who are ge-

Persons atta-
cked. generally subject to the gout. Providence bestows her gifts more equally than we are apt to allow. The gout

destroys more rich than poor, more wise men than fools; she tempers her profusion of good things with mixtures of evil; so that it appears to

to be decreed that no man shall enjoy unmixed happiness, or misery. The poor man's children are plump and rosy, while his Lord's look wan and puny.

5. VIOLENT EXERCISE, sudden heats and colds, hard study, luxurious meals, night-revels, early venery, and the sudden interruption of wonted exercises, all contribute to anticipate the gout. It not only lays hold of the gross, intemperate, and indolent; but it attacks the lean, sober, and active, if they have received the taint from gouty parents. Thus it comes to be interwoven with their very constitutions. Women and children are martyrs to a disease naturally peculiar to man. The valetudinary sons of gouty parents feel the curses of old-age before they reach the years of puberty.

6. THE reader will hardly expect to meet rules sufficient for directing him in the *cure* of a disease which baffles art. There are certain rocks on which gouty patients have suffered shipwreck; there are duties which they owe to themselves; these are both necessary to be known. In the *regular* gout, *patience* and *flannel* seem to be the requisites. The *irregular* puzzles the *College*.

Nature uninterrupted throws the morbid matter of the gout on the extremities. Whatever weakens, hurries, or disturbs nature, injures the constitution. Evacuations of all sorts, topical applications, and bitters are, at best, necessary evils. In the last chapter, the gouty reader may find cautions worthy of his notice, particularly under the section of *Preparation*.

7. If *Evacuants* and *Topics* are rather hurtful than beneficial, whence are we to expect a cure? Sydenham says, he can-

Causes.

Rules.

Bitters.

not help thinking but that a radical cure may be found out. Till then, he supposes the primary cause of the gout to proceed from *indigestion*, together with a consequential *acrimony* of the humours. Such medicines as are moderately heating, bitter, or pungent, purify the blood, and strengthen the first passages. For this purpose, he recommends *Angelica*, *Elecampane*, *Wormwood*, *Centaury*, *Germanander*, *Ground-pine*, and the like, in a compound mixture, continued for a long time. Such medicines increase the circulation, and thus strengthen.—Of all the strengtheners of digestion, Dr. *Cheyne* prefers a strong infusion of the *bark* in generous claret joined with chalybeates.—*Boerhaave*, *Sydenham*'s implicit admirer, says, *Curatio quam contemplatio mali, et experientia commendavit, absolvitur restitutio vigoris in visceribus perditis*. From the writings of the antients, as well as from experience, these gentlemen joined in the same opinion.—*Caelius Aurelianus*'s *Diacentaureon*, and *Aetius*'s *Antidotos ex duobus Centaureae generibus*, are old names for *Portland*'s powder.—*Tournefort* (in his *Histoire des plantes qui naissent aux environs de Paris*) gives an exact description of it with the addition of the *Centaurium majus*. The Faculty of *Paris* has adopted it into the *Codex Medicamentorum*, substituting the *Rhaponticum* in the room of the *Centaurium majus*.—By the persuasion of a friend, the Duke of *Portland* took it for a hereditary gout, and found such relief, that humanity induced him to publish the prescription, which differs not essentially from *Sydenham*'s. Its indiscriminate use has averted fits of the gout, substituting mortal ailments in their room.

1. "Mr. Fraigneau, *Confectioner* to the late King, was about forty years old. By a hereditary gout, he had for many years been so much a cripple that he hob-
 bled only by the help of two sticks. Every year he had regular fits ; in the interval was cheerful, lively, and sensible. Importuned by the *Great*, he took *Portland's powders* strictly. He lost his regular salutary fits. His stomach was at last so tanned with a farrago of astringent bitters, that it lost its retentive quality ; he threw up every thing, even the bitters themselves. After various regimens, he came at last to *Bath*, where, by drinking the water, his vomiting stopped, but soon returned. By Dr. Nugent's advice and mine, he took various antiemetics, all at last to no purpose." — In his case it may be worthy of remark, that when, by warm medicines, we could obtain inflammation and pain on any joint, his vomiting ceased, but the warmest at last proved ineffectual. With his last breath he cursed the powders.

*Portland's
powder fa-
tal.*

2. "Thomas Boucher, Esq. was also freed from his gouty fits by the powder. Sometime after he was afflicted with a violent fever, which bequeathed him an inveterate rheumatism, and distortion of the joints of the fingers."

8. As *Evacuants, Topics, and Bitters*, all disturb nature, by taking a nearer *Care*. view of nature, we may perhaps be led to a more powerful and safe specific.

When the *stamina vitae* come to be debilitated by intemperance, or old age ; when the secretory organs can no longer perform their office, humours are collected in greater quantities than can be discharged. These undergo various alterations ;

thus they occasion various diseases according to their degree of fermentation, or putrefaction. Hence it is that the aged are more subject to those diseases which proceed from indigestion than the young, whose vital warmth subdues, or expels noxious humours. Hence it is that invalids enjoy a better state of health in summer than in winter. Hence also it is that travelling into southern climates, cures diseases incurable in northern. Heat not only creates that juvenile fever which depurates gross humours, but it prevents their accumulation.

This doctrine is evidently confirmed by that incredible relief which *riding* procures to people labouring under chronical disorders. While it strengthens the digestive powers, it rouses that vital heat which enables the secretory organs to purify the blood.

Proinde curatio absolvitur (1) restitutione vigoris in visceribus perditi, (2) Ablutione liquidi jam corrupti fluentis in vasis, vel stagnantis.

HAD Sydenham been acquainted with the internal virtues of *Mineral Waters*, or had he weight-

Mineral waters specific. ed the effects of *Warm Bathing* in his judicious mind, he would have found a medicine endowed with virtues far superiour to his admired *Bitters*, a medicine which (in the course of days, or weeks) not only restores the lost vigour of the bowels, but depurates and carries off corrupted juices, a medicine which cures *cito, tute, et jucunde*.

In all ages, waters have been used internally and externally. The practice of *drinking* and *bathing* is rationally and succinctly laid down by Baccius, in his book *De Thermis*, pag. 119, and 120, under the article, *Juncturarum et Articulorum morbis*. Having laid down

down rules for treating other affections proceeding from *cold temperament*, he observes that, in the gout, the joints are inflated, pained, and contracted from cold temperament also; these therefore he proceeds to cure in the same manner, *per calida balnea, concedenti usu*. According to the different indications, he lays down different methods of cure; for slight affections, he proposes drinking; for more stubborn, bathing, *nam interatam arthritim, seu chiragra fit, seu podagra, sive Ischias, parcius sanabit potatio; lavacra majorem habebunt efficaciam*.

By way of preparation, he advises the patient to drink a cup of purging waters for some mornings, to absterge those viscidities which give rise to the gout, *quae crassas a latis meatibus visciditates, phlegmataque, praevias arthritis causas, foras extrudat*.

—In an universal gout, he orders the patient to bathe in warm discursive water. If there happens suspicion of distillation from the head, he refers him to the pump, as in nervous affections, *quas etiam si distillatio imputetur (ut plerumque fit) ad usum Ducciae, qualiter in nervosis, usurpare licet*. He orders conspersions not only on the occiput, for the prevention of distillation, but on the member swelled or afflicted; by way of discussion, he advises lutations also, *et itidem illutamenta*. In incipient cases, where there are many parts at once affected, he orders sweatings. *At si plures, ex dissipata fluxione, articuli conflictentur, sudationibus etiam utendum, quales in Baianis sudatoriis, et multis aliis*. After the flux of humours has abated, he advises arenation, insolation, &c. *Arenatio efficacissimum remedium est universae arthritidi, tumentibus praesertim lento ac frigido humore articulis*.—

In gout arising from hot temperament, he lays down one admonition well worthy of notice, viz.

To purge off those humours which, by bathing and sweating, might be exasperated. *Medicatum potionem, degerendo, vacuando, ac fluxiones inhibendo, quam lavacra calidarum, aut exudatio, quae liquatis viscidis, ac prius sopitis humoribus excitatis, fluxioni ne adaugeant materiam timendum.*

He recommends drinking in gouts which attack people in the bloom of life, or heat of summer, which may be by following temperate strengthening baths. *Maxime vero commoda potatio, si (ut in pluribus accidit) a causa calida incipiat fluxio, vidente praesertim aetate ac aestate ineunte; cui ministerio si lavacra commoda subsequantur, haecque temperata sunt, et quae, ex ferri qualitate, egregie valent confirmare.* Such are the *Balnea Villae Lucae, Caiae, Porretanae, Albulae, &c.* and such are our *Cross* and *Queen's*. These strengthen weak joints, and alleviate pains. On this principle, *Dioscorides* bathed *Ischiatics* in brine. *Cornelius Celsus* (Lib. iv. cap. 24.) heated brine, with which he fomented the feet, covering the patient with a cloak. *Baccius* recommends a fomentation of the mother of wine in disorders, from experience In tubs of fermenting wines, he orders the part affected, or even the whole body, if it happens to be weak, to be immersed.

Solvere nodosam nescit medicina podagram was the opprobrium of his days, as well as ours. He, nevertheless, advises a trial of unguents and bathings in gouty concretions. *Tentandum tamen non adeo confirmatos callos per olei, aut assiduum hydrolaei fustum emollere, exudationibus aperire, dispositos per balnea calidiora, iisdem ex alto dispersis discutere.* In chalk-stones, gibbous and contracted joints, *Baccius* recommends a leaden bath in *Lothoringiis*, the *Tritoli*, and many more. He recommends salt baths, *lutations*, *suburations*, *vaporaries*, *insolations*,

tions, &c. all which were rationally, and successfully practised at *Baiae*, *Puteoli*, *Cumae*, *Vesuvius*, and other places. To the doctrine of this most sagacious practitioner, I not only think myself obliged to assent; but, from reason and experience, I dare affirm, that when the waters of Bath come to be rationally applied, they will be found second to none. Bath water restores the appetite, promotes the lesser secretions, and paves the way for medicines. When the *vis vitae* is not, of itself, sufficient for protruding the gouty fomes to the extremities, Bath water is preferable to all the panaceas of the shops. The effects of the latter are momentary only, Bath water invigorates the blood, and regenerates the constitution. Bathing opens obstructions, and strengthens. In Dr. Home's *Principia Medicinae*, page 163, this opinion seems to be confirmed; his words are these, “*Vires concoctrices roborantur chalybe, vel aquis chalybeatis, Thermis Bathoniensibus praecipue.*”

9. IN *indigestion*, *flatulency*, *belching*, *nausea*, *loss of appetite*, *heart-burns*, *lowness of spirits*, *wandering pains*; and other symptoms, *Causes*, harbingers of the gout, there are votaries who daily own their obligations to *Bath*.

1. Sir William Yonge, every time that he came down, got rid of the pain of his stomach, almost by the first glass. The truth is notorious.

2. Mr Greenfield, *Apothecary of Marlborough*, had, for many years, been used to regular fits of the gout. As age advanced, the paroxysms left a debility of the stomach, with belchings, indigestion, and low spirits. For these complaints, he came down every year pale, wan, and enervated: Every trial converts his symptoms into a regular fit, which he nursed at home with patience and

flannel. He left off coming to Bath at last, and thus shortened his days.

3. For the benefit of fellow-sufferers, I am requested to publish the case of *John Eaton*, Esq. of this city, an unquestionable proof of my present position.

“ By frequent courses of drinking Bath-water, I procured regular fits of the gout, which before afflicted me much. In July, 1759, I was seized with a pain in my stomach and bowels, which, (though not acute) continued for near a month; when it left a great trembling in my hands, with loss of appetite, and lowness of spirits. These symptoms continued some weeks, and ended at last in a weakness of my limbs, so that I could neither stand, turn in my bed, nor lift my hands to my mouth.

“ These complaints induced me to come to Bath. I was carried to the *Pump*, where I drank a pint of water a day, at three different draughts, all in the morning. I drank the Bath-water mixed with wine also at my meals. This course I have pursued till now, interrupting them now and then for a fortnight; about December I left them off for ten weeks.

“ My strength increased gradually, I am now able to walk, and to assist myself as well as can be expected from a man who has been so much troubled with the gout, of which I had several slight fits since my residence at Bath.

Bladud-Buildings,
11th April, 1761.

John Eaton.”

4. Mr. Fleming, a *Swiss* by birth; once a milliner in Bond-street, nine years ago, was taken, as he played at cards, suddenly with a sickness and

and giddiness in his head. Getting up, he reel-ed, and ran against the wall with such force, that he broke his head. By art he was so much relieved that he came to Bath, where (ignorant of the cause) he drank the waters, and at the end of fourteen days had a smart fit of the gout in both feet, which lasted twenty-one days. After this he continued well for years. In the year 1758, he was again attacked with violent pain of the stomach and head, with cough, chills, shiverings, &c. Doctor Shaw advised him to come to Bath. His affairs not permitting, he continued eleven weeks under his and Doctor Taylor's hands. In a weakly emaciated condition, without appetite, or digestion, he was transported at last to Bath, where, by drinking the water for one week only, both legs swelled and inflamed. This fit lasted three weeks, and kept him in health for a year. Whenever his head or stomach complaints begin, he immediately sets out to the healing spring, and finds a certain painful cure.

WHEN the patient has gone through a regular fit, when the paroxysms have purified the habit, when he finds his spirits lively, *Caution.* and his senses clear, he ought then to bathe in water rather cooler than the heat of the human blood. Tepid bathing is a rational remedy for clearing the vessels of the dregs of the disease. The Cold-Bath completes the cure.

The patient then ought to bid adieu to Bath-water. This caution may not perhaps be impertinent, when we consider that there are numbers who blindly jog on in the circle of curing and procuring gouts by the same specific, till by indolence, waters, and drugs, constitutions come to be worn out.

BATH-WATER has performed wonders *externally*, as well as *internally*. When the chalky matter breaks through the small vessels, it forms lodgments in the interstices of the muscles, it deposites itself on the tendons, which it thickens, stiffens, and renders unfit for muscular motion, it dries up that liquor which serves for lubricating the joints, it forms stiff joints. Persons thus affected have been recovered by warm bathing; not on the principle of *softening*, or *relaxing*, as imagined by Doctor Oliver, in his *Essay on the use, and abuse of warm bathing in gouty cases*; for I have already proved Bath-waters to be *hard*, *bracing*, and *astringent*. Nor do they contain particles *saponaceous*; for they are not such powerful solvents as common water. His little performance is nevertheless fraught with practical reflections, and cautions well-worthy of the perusal of the gouty reader; a convincing proof that tho' in theory we may differ, observation and experience will direct all to the truth.

Of the doctrine of *Rarefaction* and the effects of fevers artificially raised, I have treated at large, in my *Attempt to revive the doctrine of Bathing*. Suffice it here to say, that the diameters of the vessels thus enlarged, the moleculæ, which were too large to pass in their contracted state, are ground down by repeated circulation and depuration.

1. " Dr. Pierce (in his *Bath Memoirs*) mentions the following case of his own father-in-law, Mr. David Tryme. From between fifty and sixty, he had been subject to fits of the gout at great intervals, tho' he drank freely, and rode hard. Whe he had a fit, he used plaisters and ointments of all sorts. At the age of eighty-three, " he

Pierce's Cases.

“ He was attacked with a severe fit, which first seized his toes and fingers, to which he used to apply whatever was proposed ; by which he fell into fainting fits, out of which he was with great difficulty got by the use of strong waters and cordials.

“ These threw the gout *a centro in circumferentiam*, into his hips, knees, and feet, so that he was, for some days, in excessive pain, which he chose to bear rather than again to apply his plaisters. Patience and posset-drink eased the pain, but left so great a weakness, and stiffness, that he could neither walk, stand, nor extend his legs. From July to April he remained a cripple.

“ He was lifted in and out of the *Queen's* and *King's-Baths*. After three weeks bathing, he not only walked between his guides, but he swam twice round the *King's-Bath*. He recovered, and lived five years longer without any severe fit of the gout.”

2. “ Robert Long, Esq. of *Priar-Stanton*, in the 89th year of his age, was much enfeebled with severe fits of the *gout*, was weak in his limbs, and tender in his feet. He bathed in the *Cross-Bath* fourteen or fifteen times. He walked more erect and nimble, has a smooth fresh florid countenance, and is likely to pass another seven years.”

3. “ George Long, Esq. of *Downside*, near *Wells*, was, upwards of twenty years past, attacked by the *Gout* and *Stone*. He was pained in every joint ; his fingers became crooked, his right knee, hips, and back motionless by calculous matter, which crammed itself into every joint. He was bed-ridden. His thirst was importunate,

“ his appetite lost, his skin shrivelled, his face
“ meagre, his hair grey, his flesh wasted, so that
“ he could throw the calf of his leg over his
“ shin-bone. With all this, he had a perpetual
“ sharpness of urine; nay, all the juices of his
“ body had such a propensity to lapidescence,
“ that his water being left, but a few days, in a
“ urinal, was crusted at the side and top as thick
“ as half a crown, with a porous kind of stone
“ like that of a *pumex*.

“ In this condition, he was, with difficulty,
“ transported to *Bath*. He began with drinking
“ the waters hot from the Pump in the morning;
“ at meals cold, for he drank not then, nor
“ hath he since drank any malt liquor. In a
“ week’s time his thirst abated, and the sharp-
“ ness of his urine lessened; his stomach began
“ to return. After a month’s drinking, he bathed
“ between whiles, which eased his pains much.
“ In the *Bath*, he could suffer his legs to be ex-
“ tended a little.

“ He returned home in about six weeks, and
“ drank the waters there. In three months af-
“ ter, he returned, bathed, and drank six weeks
“ as before. In the mean time he gathered some
“ flesh and strength, with some small ability to
“ go, though criplishly.

“ In November following his grey hairs began
“ to fall off; new ones succeeded; nay, he says,
“ his grey hairs turned to a soft brown, which
“ grew so fast, that he cut more than an inch
“ every four or five weeks. By *Candlemas* he
“ hardly had a grey hair left. Even now, bate-
“ ing a little baldness on the crown, (for he is
“ on the wrong side of fifty) it looks like a bor-
“ der of hair, which I have seen before whole
“ heads were so much in use.

“ To

“ To perfect his recovery, he took a house and
“ lived here for the most part of the next year,
“ 1692, about which time his toe-nails, which were
“ hard, ragged, and scaly, began to be thrust off
“ by new and smooth ones. His arms and hands
“ recovered strength, he had much freer motion
“ of his joints, his muscles plumped. He was
“ daily more and more erect; every bathing
“ stretched him half an inch. He had now a
“ fleshy hale habit of body, a vigorous eye, and
“ a ruddy, plump, youthful face, especially when
“ he mixes *Sherry* with his water, which he will
“ sometimes do. In fine, he hath no fit of the
“ *Gout* to lay him up long together, nor the least
“ touch of stone, or sharpness of urine. He
“ rode from *Bath* to *Oxford* in a day, which is
“ forty-eight computed miles; and, but a few
“ days before that, went from hence to his own
“ house, which is twelve or fourteen long miles,
“ after twelve o’clock at night; went to bed for
“ two or three hours, rose again, and dispatched
“ a great deal of business before dinner. His
“ wife being asked a question about his rejuve-
“ nescency, answered, *I verily believe, if I was*
“ *dead, he would marry again.*”

4. “ Dr. Guidot (in his *Register of Bath*) men-
“ tions the *Cafe* of a merchant of London of se-
“ venty years of age, so afflicted with
“ the *gout*, that, for six weeks time, *Guidot's
Cafes.*
“ he could not go to bed, or rise with-
“ out help, having also used crutches for many
“ months. By the use of the *Cross Bath*, and
“ rubbing well with the guides hands, at three
“ seasons of *Bathing*, so far recovered, that using
“ only a stick, which he usually wore, he now
“ walks strongly, both hands and feet being flexi-
“ ble,

“ ble, and free from pain. He subscribed the benefit received, 5 August, 1676. R. P.”

5. “ Sir Francis Stonor, Knt. received great benefit in great weakness from the *gout*, by the use of the *Queen's* and *King's Bath*, in gratitude for which he gave a considerable sum of money, by which the *stone rails* and *pavement* were built about the *King's Bath*.”

In Dr. Oliver's *Essay* before-mentioned, we find two *Cases* to our purpose. The first is contained in a letter from Charles Edwin, Esq. the patient, to the Doctor. The second relates the *Case* of a patient of Dr. Woodford's, Reg. Prof. Med. Oxon. in the *Bath Infirmary*.

6. “ Mr. Edwin's second fit of the *gout* left a weakness in the joints of one foot. In a succeeding fit, it attacked the other foot and ankle, afterwards one of his hands, and both knees, so that he could not bend or move his ankles; he could not walk. After his third bathing, he was able to walk in his room without the help of crutches, and gained strength so as to walk about the town with a cane.

“ He bathed sixty-five times, and pumped thirty-eight. It is remarkable (says the Doctor) that, during this course, he never had one symptom of the humour's being thrown upon any vital part, neither has he had any violent fit of the *gout* since.”

7. “ Philip Tuckey, aged about fifty, was born of gouty parents, and improved his woe-ful inheritance by a very free way of life. When he was about twenty-seven years old, he was attacked in the great toe. For some years he had fits at uncertain periods. About twelve years ago he got a violent cold by painting “ (which

“ (which was his profession) a new built house.
“ This threw the *gout* all over his head, stomach,
“ bowels and limbs. The pains continued to
“ torment one part or other for five months, and
“ left him so weak and lame, that he could never
“ after walk without crutches.

“ His knees were almost immoveable, the
“ membranes which surround the joint being
“ much thickened, and the tendons which draw
“ the legs towards the thigh being hard and con-
“ tracted. His legs, ankles and feet, were much
“ swollen and oedematous. He had little appe-
“ tite, and a bad digestion. His spirits were low,
“ to which despair of recovery contributed not a
“ little.

“ After his first passages had been cleansed by
“ warm purges, he began to drink the waters in
“ moderate quantities. He soon found his appe-
“ tite and digestion mend, his spirits were re-
“ lieved. Having persisted in this course some
“ days, he was ordered to bathe three times a
“ week. He had not bathed thrice before the
“ tendons began to supple, and to give way to
“ the extension of his legs. By a few more
“ bathings, the swellings of his joints gradually
“ decreased, but without any symptom of the
“ stagnant humour's being translated to the head,
“ stomach, lungs, or bowels. He took a warm
“ purge now and then, to clean the passages, as
“ well as to discharge the gouty matter which
“ had been moved by bathing. Thus, he went
“ on, gaining strength daily, so that in a month's
“ time, he walked two miles with only a single
“ stick, without being tired. In this happy con-
“ dition he was discharged in two months.”

8. Sir Cordel Firebrace came to *Bath* a very
cripple by the *gout*. Against the opinion of his
physicians,

physicians, he was carried into the Bath. He tarried, for hours together, in the very hottest parts, and was cured.

The following is the *Case* of Doctor Sarsfield, Physician, of Cork.

Dear Sir, Bath, April the 7th, 1764.

9. In approbation of your most laudable undertaking, in gratitude to *Bath Waters*, as well as for the benefit of my fellow-sufferers, I freely communicate the heads of my case to you, meaning only to point out, in general, the remedies I have reason to lay the greatest stress upon, intending to publish the case at length, with all its particular changes and circumstances. Naturally gouty, about twelve months ago I was brought to Bath, entirely deprived of the use of my limbs, not having one articulation in my body capable of motion, except that of my under jaw; I was in pretty much the same situation for fifteen months before, wasted to a skeleton, with universal and constant acute pain, restlessness, total want of appetite, stoppage of water, costiveness, and full appearance of a jaundice. I drank the waters with caution, increasing gradually; bathed in the different baths about seventy times, took gentle laxatives generally once in ten days, took Huxham's *Essence of Antimony*, of which I believe I made the greatest trial that ever has been made, having taken to the quantity of five tea-spoonfuls at a time, very often without its making me sick at stomach.

I cannot omit observing, that about four months ago I perceived a pain, with a swelling in the back near the right hip, which part seemed most affected from the beginning; this gradually increased until it was thought proper to open it by

by a caustic ; the discharge was very considerable, and continued till the other day, when a large pea was put in, and the sore is now turned into an *issue*, by which I already find great benefit, now that I write this for your satisfaction and the public good. I am free from pain, walk as well as ever, and enjoy, in every respect, better health than I did these ten years past.

I am,

Dear Sir,

Your most assured friend,

And very humble servant,

To Dr. Alex. Sutherland.

Dom. Sarsfield,

C H A P.

C H A P. IX.

OF THE RHEUMATISM.

1. **R**HEUMATISM and GOUT are so often mistaken for one another, and consequently mal-treated, that it may therefore be useful to lay down some general rules whereby they may be distinguished.—
Rheumatism and gout distinguished. Gouty matter tears the small vessels, and, thus, produces fevers, pain, swellings, and redness of long duration.—The pain of the rheumatism is tensive, heavy, gnawing; and continues after the fever is gone, without remarkable tumor, or redness.—The rheumatism often attacks but once or twice in life.—Paroxysms of the gout are rather temporary depurations than complete cures.—The rheumatism has been cured.—The gout never ought to be attempted.

Division. 2. The rheumatism is distinguished into *febrile*, and not *febrile*.

Causes. 3. Its remote causes are sudden chills, changes of winds, excessive loss of blood, super-purgation, plethora, surfeits, drinking, *nimia venus*, intermittents, scurvy, and p—x.

4. Its proximate causes seem to be obstruction of the serous and lymphatic vessels, especially of the membranes and ligaments, occasioned by viscid acrid serum.

Symptoms. 5. The febrile symptoms are lassitude, rigour, chilliness and heaviness of the extremities, quick hard pulse, thirst, restlessness, costiveness.

After a day or two, sharp shifting pains occupy the joints, with swelling and inflammation; these are increased by motion, and often shift

shift their seat. The blood puts on the pleuritic hue. Sometimes it seizes the head or bowels. The pains continue after the fever. Tubercles, and stiff joints often follow.

The non-febrile symptoms are wandering pains, with stiffness in the muscles, or ligaments, without swelling, chiefly.

6. While the rheumatism occupies the extremities only, the prognostic is fair, and
e. c. Chronic disorders or gout are *Prognostics.* often consequences.

7. BORN in a happier climate, our instructors, the antients, have left little on record on the subject of rheumatism. They were exempted from diseases arising from obstructed perspiration. From Sydenham, the moderns seem to have borrowed the present practice. He was so free with the lancet, that, in his early practice, he destroyed the *vis vitae*, and thereby entailed tedious chronic ailments. In pain, patients as well as physicians grasp at every thing that gives present relief; premature opiates call for bleedings. In their own cases, physicians ought not to trust themselves. When the body is in pain, the mind sympathises. Of this I could recount fatal examples.—Bath and Bristol waters increase the circulation and enrich the blood; and are, therefore, improper in rheumatisms of the *febrile* sort.—In *chronic* rheumatisms, or in *febrile*, after the inflammation is subdued and the first passages cleansed, attenuants, resolvents, diaphoretics and demulcents are indicated. Bath waters internal or external answer every intention. To facts I appeal.

8. In his *Bath Memoirs*, Dr. Pierce *Pierce's Cases.* relates the following cures.

1. " Dr. Floyde, bishop of Litchfield, had such pain and weakness in the right shoulder and arm; that it interrupted his rest; he came to Bath, and, by *bathing*, and *pumping*, received such benefit, that he continued well for ten or twelve years after. It then returned with greater violence, so that his body yielded to that side. By bathing and pumping he recovered."

2. " Major Arnold complained of a very great pain and weakness from his left shoulder downwards to his fingers end. He had pain also in his right hip, thigh and leg. He had withal a violent cough, he discharged much and foul spittle; he had little or no stomach, and sometimes cast up what he had eaten. He was subject to the *Stone*, and formerly voided much gravel and small stones.

" Making too much haste to be well, he went into the Bath presently, and suffered by it. After due preparation, I put him first upon drinking the waters, because of his nephritic disorder, and then permitted him to bathe. At two months end, he returned perfectly cured as to cough, stomach, and rheumatism."

3. Dr. Guidot (in his *Register*) records the following. " Mr. Arthur Sherstone of *Bromham*, aged fifty, after a short journey was taken with a *rheumatism*, which, after violent pains universal, seized on his hand, knee, and foot. He also lost the motion of his lower limbs. By bleeding, and other evacuations, the inflammation and swelling abated considerably, but the running pains remained so as to take away the use of both arms, by turns. " By

“ By the moderate use of the Queen’s-Bath, he
“ recovered.”

4. “ John Binmore of Exeter, for benefit re-
“ ceived in the *rheumatism*, which had superin-
“ duced both palsy and dropsy, by drinking the
“ waters, and the use of the mud, he gave pub-
“ lic thanks to God.”

5. When the army was preparing to embark for *Belleisle*, Captain Buchannan, of the Royal Scotch Fuzileers, was then under a sweating antimonial regimen for the rheumatism. Half cured and crippled, he would embark. Marching up to the attack, he fell down. Ordering his men to jump over him, by the assistance of a drummer, he gathered himself up and hobbled after them. By a long and cold winter’s campaign his disorder was increased. When he came to Bath he was crippled, hands and feet. By bathing and drinking he recovered.

6. FROM May 1742, to 1760, there were five hundred seventy-five rheumatics admitted into the *Bath Infirmary*. Of these one hundred eighty-three were *cured*, two hundred and eighty *much better*, the rest *better*, or *incurable*.

OF THE LUMBAGO.

THE *Rheumatism*, *Lumbago*, and *Sciatica*, are species of the same same genus. They differ only in the names of the parts of *Lumbago*. the body which they attack.

The *Lumbago* is often mistaken for the *Nephritis*: the distinguishing sign is, the latter is attended with vomiting, the former not.

Dr. Pierce (in his *Bath-Memoirs*) has recorded the following Cases. 1. “ Wil-
“ liam Lord Stafford was affected in

*Pierce's
Cases.*

“ both

“ both hips, and in the lumbal muscles also.
 “ He bathed in the *Cross Bath* for five or six
 “ weeks, for it was summer, and went away
 “ better. In October he returned, finding his
 “ pains renewed so as to make him roar. When
 “ the weather was moderate, he bathed in the
 “ *King's Bath*; when it was foul, in a tub. A-
 “ bout the middle of February he went to Lon-
 “ don recovered.”

2. “ Lady Dowager Brooke was seized with-
 “ a *Lumbago*, or *Double Sciatica*, with violent
 “ pains which bended her double. By the advice
 “ of three of the most eminent physicians of
 “ London, she had gone through several courses
 “ of physic, with hardly any amendment. A
 “ salivation was at length proposed, which she
 “ positively refused, proposing *Bath* of her own
 “ accord. This resolution was vehemently op-
 “ posed by three out of the four. *Willis* took a
 “ formal leave of her, washing his hands, and
 “ prognosticating certain death. She set out ne-
 “ vertheless in *September*, and entered presently
 “ on bathing in the *Cross-Bath*, drinking some-
 “ times of the water. In the first week she
 “ found ease, could stand upright in the Bath;
 “ in a month's time could walk in her chamber,
 “ and was perfectly recovered. Her Doctors,
 “ when they took their leave, packed her up a
 “ peck of medicines, which she never tasted, nor
 “ indeed hardly any while she staid here.”

OF THE SCIATICA.

Pierce's Cases. 1. Dr. Pierce's first observation is that
 of Duke Hamilton. “ His Grace came
 “ hither very *unwell*, as he himself term-
 “ ed it, by reason of a pain in his hips, which
 “ caused

“ caused him to go very lame, and disturbed his rest at night, and had done so for many months before.

“ After due preparation, he entered the Bath, and sometimes drank the waters in the Bath only, to prevent thirst. After a week or ten days bathing, he was pumped on the affected hip. This course was continued for a month, or five weeks, by which *His Grace* obtained so much advantage, that he walked about with a cane, favouring that leg. On catching cold, he had afterwards minding of his illness again; but by visiting this place once or twice more, he recovered perfectly.”

2. “ Col. Mildmay’s case was more painful and more inveterate. By bathing he recovered.”

3. “ Sir John Clobery had been a colonel in Scotland, under *Monk*. By great fatigues, and being frequently obliged to sleep on the ground, he was seized with aches and pains in his limbs, of which he recovered. By laying in damp sheets, he was seized with a tormenting fit of a *Sciatica*, which held him two years, and crippled him.

“ He went through various regimens in London, all to no purpose. After being bled and purged, he bathed, and pumped for six or eight weeks, at the end of which he went away, not much advantaged for the present; but, after two or three months, was well at ease, upright, and straight.”

4. “ Mrs. Boswel, newly married, aged about twenty, was contracted and crippled by a sciatica, so that she could neither stand upright, nor lay straight. She was carried in arms, not without frequent complaints of twinging pains.

“ She

“ She had tried all sorts of remedies, internal and external, without benefit. By two months bathing and pumping she mended considerably, insomuch that she could leave off her opiate, which she took twice or thrice a day to the quantity of thirty or forty drops at a time. Whether it was by the violence of her pain, or the too frequent use of these stupefactive medicines, or former inclination to hysterics, she had often very violent ones, not much short of *epileptic fits*.

“ She bathed, and pumped, and thus recovered considerably the first season. Next year she returned and completed her cure.”

AMONG Guidot’s two hundred *Cases* there are fourteen *Sciatics*, a specimen of which are the following.

5. “ Benjamin Barber, Alderman of Bath, was cured by bathing and pumping.”

6. “ Robert Sheyler was cured by three baths.”

7. “ Mr. Thomas Wilkins was cured by bathing four times, and pumping twice.”

C H A P. X.

OF CUTANEOUS DISEASES.

IN Skin Diseases Baths natural and artificial have been used in all ages, and in all countries. In his book (*De Thermis*, pag. 122.) Baccius expresses himself, *Maculas autem, pruritus, ulcuscula, scabies, lepras, papulas, et id genus alia per cutim vulgo manantia vitia, tum crebrae medicatarum potionis exterminant, tum ablueunt, abolentque in totum abstergentium et calidarum quarumcunque lotiones. In universum, minerales aquae omnes, omnes falsae ac marinae ad omnigena cutis faciunt vitia.*

I. OF THE LEPROSY.

1. LEPROSY, or *Elephantiasis*, is a cuticular disease appearing in the form of dry, white, thin, scurfy scales.

Definition.

2. Its diagnostic signs are itching with scales generally confined to the cuticle. Sometimes it goes deeper, and appears in the form of deep ulcers.

Diagnostics.

3. This disease is generally hard to cure, especially if it is hereditary.

Prognostic.

In this and other inveterate diseases of the skin, bathing has successfully been used in all ages. Baccius (pag. 122) expresses himself thus. *Elephantiasi autem et quam dicunt Lepram, nec minus omni intemperatae, ac veteri scabiei, fortiora in cunctis convenient balnea, omnes terreae minerales, sulphureae praesertim, quales in Lutatioribus commemorantur multae. The Well Calirhoe, and the River Jordan, are said, in sacred writ,*

writ, to have cured *Leprosies*. Paulus Aegineta commends natural baths in the cure of *Leprosies*, *praesertim aluminosarum, et quae ferrum sapiunt. Confert ipsarum potio, tum marinae harenae usus, et quaecunque tandem sudationibus ciendis efficaciam habent, Vaporaria, ac Discussoria.*

Dr. Pierce (in his *Bath Memoirs*) expresses himself thus. " For more than forty General proofs. " years that I have lived here, there " hath not one past wherein there " hath not been more than a few instances of " very great cures done upon *leprous, scurvy, and scabby* persons. The virtue of the waters is so " well known in leprous cases, that it seems al- " most superfluous to bring examples. However, " that this head may not be without its particular " instances, I shall give some few eminent ones.

I. " Thomas St. Lawrence, Esq. of *Ireland*, Pierce's Case. " aged fifteen or sixteen, was sent " hither in May, 1679. For seven " years past he had been afflicted with " a perverse *scab* tending to a *leprosy*, which had " yielded to no medicine. By my advice he was " bled and purged four times, took alteratives, " drank the waters, bathed and recovered."

2. " A poor fellow from *Warwickshire* came " hither in the year 1684. I never saw any one " come nearer to the description of a *leper* in the " *Leviticus* than this man. By drinking, and " bathing in the *Lepers-Bath*, he was perfectly re- " covered."

3. " A Woodmonger of *Staines* brought his " son hither aged about twelve or thirteen, who, " from his infancy, was subject to the *Vitelligo*. " Sometimes it was more, then less, in greater or " lesser blotches on his neck, elbow, knees, face, " head, arms, and thighs, with a brawny white " scurf,

“scurf, which fell off and grew again. After a month’s bathing and drinking, the spots rose not so much. But, as the disease had been born with him, I advised his father to put him to school here. I could not get him to drink regularly, but he bathed every night, and sometimes took physic. In a twelve month’s time he returned as sound as a trout, and had been so for some months before he set out.”

4. FROM Dr. Guidot’s *Bath Register* we have copied the following *Cases*. “Emanuel Weston, of Elsmore, in the county of Salop, had a scurfy head with many scales for five years. By bathing and washing the head in the Lepers-Bath he was cured, June 14th, 1682.”

Guidot's Cases.

5. “E. G. daughter of a musician of Bath, from her birth was troubled with a scurvy and scaly head like an *elephantiasy*, or *leprosy*. By the use of the King’s Bath, and application of the mud, with some externals, she had a sound head, and thick hair. This I saw November 5, 1685.”

6. “Dorothy Rossington having scales falling from all her body, especially in the morning, by using the King’s and Queen’s Baths six months received cure.”

7. “Richard Vernon, aged fourteen, was for ten years troubled with a milder sort of *leprosy*, called an *elephantiasy*, with tawny spots, and white scales. He drank the water seven days, and bathed three weeks, by which he recovered. The winter following the disease broke forth. After eight weeks pursuit of the same method, he went away well. Father and son gave testimony, June 6, 1689.”

8. "Henry Clempson, shoemaker, came to Bath Whit-Monday, 1687, used the hot bath three months. The year following, two months, gave public thanks to Almighty God, who cured him of a white dry *leprosy*, called *elephantiasy confirmed*, which had miserably afflicted him for six years."

9. "I John Burch, of the county of Kent, came to Bath, April 30, 1691, troubled three years with a white scurfy skin and head. Under the scales were reddish spots most commonly round. I used the Bath nine weeks, and acknowledged my cure."

10. "Horthy Harper, a *Leper*, received great benefit by the *Lepers-Bath*, 1693."

11. "Elizabeth Smith, a *Leper*, whose skin was covered over with white scales, went away clean, 1693."

12. "Sarah Meredith of *Carleen*, received benefit in an *Elephantiasy* by the *Hot-Bath*, 1693."

13. "Howel Morgan, Esq. of *Merioneth*, received great benefit in a foul skin resembling an *elephantiasy*, by drinking and bathing, 1693."

II. OF THE SCROPHULA.

Definition. 1. SCROPHULA is an indolent schirrous tumour, seated chiefly in the glands of the neck, and degenerating into ulcers of the worst sort.

Seat. 2. Its chief seat is the glandular system in general, not the only, for it occupies the adipose membrane, muscles, tendons, joints, and bones.

3. Par-

3. Particular nations are infested with it, viz. the *Bavarians*, *Dutch*, and the *Tyroleze*. Of these children, persons grown up rarely.

4. Its remote causes are crude, viscid, acid diet, foggy air, preceding diseases, pox, snow water, but, above all, hereditary taint, sometimes from the nurse. It is very difficult to be cured. *Scrophulas subnascentes abolere balneum item in Baianis et digerentia, et callida alia diutissime fota, ut nitrata calentia, ac item ebibita, quales placuit Vitruvio celebrare Subutilas aquas in Sabinis, pariterque fomenta ex bituminosis, ferreis, plumbeis, et ex brassica paramatum in Discusoriis artificialibus*, says Baccius, pag. 122.

1. FROM Pierce's *Memoirs*, we have these *Cases*. "Lord James Butler came to Bath, June, 1677, with a chirurgeon to dress his wound, which was upon the last ^{Pierce's} *Cases*. joint of one of his thumbs. It was judged to be scrophulous. He drank the water mostly, sometimes bathed. That hand he bathed morning and evening at home. After five or six weeks, the wound afforded a more laudable quittance, which gave him encouragement to return another season, which he did, and was cured."

2. "A son of Monsieur Du Puys, servant to James Duke of York, had a running sore on his hand, which yielded to no surgery. It was therefore deemed *scrophulous*. He had been touched more than once to no purpose. He drank the waters, and bathed, took *vulneraries* and other alteratives. In two seasons he was cured."

3. FROM Guidot's Register we have the following. "Francis Loughton, ^{Guidot's} *Cases*. of the parish of St. Mark, Notting-

“ham, came to Bath, May 5, 1684, with two
 “running sores, one in the leg, another in the
 “thigh. On the use of the Lepers-Bath for two
 “months, the ulcers healed, there remained on-
 “ly some crookedness.”

4. “Edward Huddle, of *Chesham*, came to
 “Bath with running ulcers all over his body.
 “After great expences, and despair of cure, he
 “used the Bath six weeks, and drank sparingly.
 “His ulcers healed, he went away well, Septem-
 “ber, 1688.”

5. “Margaret Geary, of the county of *Aber-*
 “*deen*, troubled with lameness and running ul-
 “cers in both knees and left shoulder for three
 “years, by the use of hot bath received cure,
 “August 17, 1682.”

The only publication of *Hospital Cases* is one six-penny number, by Dr. Oliver, containing *fourteen*. Had this gentleman’s practice been as distinctly related in the *Infirmary practice*. books from the beginning, they would have contained clearer proofs of the power of the waters. His first begins only in the year 1757. Among the fourteen, we find no less than *six* manifest proofs of the power of the waters, in one of the most loathsome disorders, *Leprosy*.

In that gross publication of eighteen years hospital practice, we find one article stand thus, *Leprosies, and foul eruptions of the skin*. Under this general head, there were 659 admitted; of this number two hundred sixty-eight were *cured*, and 315 *much better*, an unquestionable proof of the power of the waters.—“From this account, “indistinct as it is, and from the relations of other writers, we may venture to conclude that, “in this article, there is great matter of comfort “to

" to those who languish under *leprosies*, *scrophulas*,
 " *scurvies*, *running-sores*, &c."

In his *Principia Medicinae*, pag. 201. Dr. Home recommends *ferrum et aquae chalybeatae*, *sulphur*, *aquae sulphuratae*, *imprimis Moffatenses nostrae*. The virtues of Moffat Wells, (in scrophulous cases) are confirmed in the *Edin. Med. Essays*, as well as by daily experience.

III. OF THE SCURVY.

1. VARIOUS, numerous, and discordant are the symptoms of the *scurvy*; hardly can it be defined; it nevertheless appears to be a disease *Definition.* specific and distinct from all others. Its distinctions seem rather to arise from different constitutions than from different causes. It seems to have been known to the antients; though, by reason of their short winters, and coasting voyages, it raged not so fiercely as with us. For more than a century past, the *scurvy* seems to have been the bane of our armies and fleets.

2. PREJUDICE has established a distinction between sea-scurvies and land-scurvies. If we compare the pathognomonic signs of *Echthiis*, *Wierus*, and others, we shall find them quadrate exactly with the narrative of *Anson's* voyage. Putrid gums, swelled legs, rigid tendons, haemorrhages, sudden deaths, &c. are symptoms described by seamen and landmen. Its symptoms are uniformly the same at sea, in *Holland*, *Greenland*, *Hungary*, *Gronstadt*, *Wiburg*, in the *Orkneys*, and at *Penzance*.

3. VARIOUS have been the opinions concerning the *causes* and propagation of this distemper. Some believed it connate, o-

*Sea and land
scurvies the
same.*

thers infectious. E. c. wherever this calamity has been general, it may be deduced from natural causes.

Of all the causes, *moisture* is the chief. On the subject of the scurvy, I have treated at large, in my *Attempt to revive the medical use of Sea air and exercise*. For farther satisfaction, I beg leave to refer the curious reader to Doctor Lind's book on the subject, a master-piece of the kind. My present subject naturally leads me to scurries, as they fall under the power of *Mineral Waters*.

Pains gouty, scorbatic, and rheumatic. THERE are wandering pains which usurp the mask of *gout, rheumatism, and scurvy*, and which are often complications of the three.

The matter is of a volatile phlogistic nature, it passes sometimes like electricity through the whole body, darting pains, convulsions, twitchings and cramps; especially when the patient is falling asleep, sometimes fixing with redness, inflammation and pain; but, in a few minutes the joints grow pale and easy, the spirits flag, he becomes hypochondriac, the appetite fails, digestion is imperfect, flatus's prevail, the flesh wastes, nervous atrophy succeeds.

Sydenham says, " Though there is remarkable difference between the true *rheumatism* and the *scurvy*, as intimated above, it must nevertheless be owned, that there is another species of *rheumatism* which is near a-kin to the *scurvy*; for it resembles it in its capital symptoms, and requires the same method of cure nearly. The pain affects sometimes one part, sometimes another; rarely occasions swelling, nor is it attended with fever. It is also less fixed, sometimes it attacks the internal parts with sickness. It is of long duration. It chiefly attacks the female sex, or

or the effeminate, so that I should have referred it to the hysterical class, had not repeated experience taught me that it will not yield to hysterical remedies."

Boerhaave, who has extracted his chapter of rheumatic aphorisms from the former, says, (Aph. 1490) *Arthritidi, podagrae, scorbutoque agnatus morbus frequentissimus, qui rheumatismus appellatur.*

Hoffman also observes, "That there is a *scorbutic rheumatism*, in which the whole mass of lymph and serum is vitiated with foul particles which manifest themselves by different kinds of eruptions.

" Diluent and demulcent remedies taken freely, and continued long, are chiefly proper here. *Mineral waters*, and milk with a proper regimen, are likewise of great efficacy in curing this species of the disease."

Paulus Paravicinus (*De Balneis Masidi*) says, *Quantum vero arthriticis, ischiadicis, convulsis, distentis, resolutis, tremulis, nerviceisque omnibus subveniant, exprimero non facile possim.* *Ob haec autem corporis vicia portissime celebres sunt, et omnium ore versantur* — " *An-dreas Calvus municeps meus hujus rei testis est locupletissimus, cui post molestissimos coxendicis dolores, femur adeo riguerat, concretis cum gelu muscularis, ut nullum medicamentum genus praeter balnea haec sensim excitare potuerit.*" — Doctor Lind recommends Warm Baths medicated with aromatic plants.

1. The first case of Dr. Pierce's *Bath Memoirs*, and of his own practice, that falls under this head, happens to be his own. — " I had sometimes a pain in my right ^{Pierce's Cases.} hip, thigh, knee and ankle, which soon moved to my shoulder and arm, in both so acute, as to render them for some time useless.

“ I had also a dull heavy pain in my legs, with a little swelling and small spots.

“ After due preparation, I bathed spring and fall. I used a decoction of *China*, *Sarsa*, with *Cephalics*, *Neurotics*, *Antiscorbutics*, &c. I used the waters only in, and after bathing, so as to quench thirst, because I was subject to rheums, and catarrhs. By God’s blessing, Bath waters, regimen, and exercise, I now continue so well in the seventy-fourth year of my age, that I have neither gout, stone, dropsy, cough, asthma, nor any remainder of the scurvy, but want of teeth.”

2. “ Mrs. Jane Chase, a maiden gentlewoman, aged about twenty-four years, was taken with sharp pains in her joints only, which ran from place to place by quick removes, sometimes inflaming, then swelling, always painful. She was so weak that she could not stand. She had a spontaneous lassitude, want of appetite, digestion, palpitation, &c.

“ After convenient preparation she bathed; and, in bathing, we were obliged to support her with cordials, for, at first, she could not bear a temperate bath more than twice a week, for she was brought hither in a litter.

“ In two months time she recovered strength and digestion, the tumors of her joints began to subside, the palpitation remitted. She went home on horseback, and continued the autumn and winter following, free from a relapse. She drank the waters no otherwise than to quench her thirst in the bath, and sometimes to keep her soluble. She continued many years free from this painful distemper.”

3. “ Mrs. Green, of Stratford upon Avon, aged forty years, had a wandering scorbutic gout

“ and

“ and rheumatism twenty years before, of which
“ she recovered and married. It now returned,
“ and tortured her at first between the shoulders,
“ so that, on the least motion, she was ready to
“ faint away. By outward applications, it moved
“ to her limbs, hips, knees, and soles of her feet,
“ which crippled her.

“ After various regimens, she was brought to
“ Bath. After slight preparation, she was put
“ in the *Cross-Bath*, the most temperate. Thus,
“ continuing to drink and bathe by turns, for five
“ or six weeks, she returned well.”

4. “ Mrs. Martha Grefwold of *Soly-hill* in
“ *Warwickshire*, at thirteen years of age, by ly-
“ ing on the ground, in, or soon after a *scarlet fe-*
“ *ver*, was taken with a *rheumatism*, which left a
“ stiffness in her joints, and other symptoms.
“ When she came to Bath, she was twenty-three
“ years old, so weak, as not able to use hand, or
“ foot. Her head was also affected, so that she
“ could hardly remember what was said to her.

“ After a week’s gentle preparation, she bath-
“ ed, and pumped for seven weeks, at the end of
“ which, she rode forty miles homeward the first
“ day. She kept well for ten years. Since that
“ she has had severe fits of the *gout*, with distor-
“ tions and nodes, for which she has often come
“ hither; and, by drinking and bathing, has al-
“ ways received benefit.”

5. “ Mrs. Mary Huntly unmarried, aged a-
“ bout thirty, in much the same case with Mrs.
“ *Chase*, she had besides *heats*, and *pimples* in her
“ face, *cough*, and *shortness of breathing*, she was
“ also greatly obstructed.

“ She required more preparation, but by shorter
“ space of bathing she recovered.”

Dr. Pierce concludes his section of *wandering pains* in these words. " Many more instances " might be given. Of late, these kind of ill- " nesses have gone under the name of *rheuma- tisms*; but call them what they will, all pains " and weakness remaining after this, or the *gout*, " have certainly been recovered by moderate and " regular *bathing*, and relapses have been prevent- " ed by *drinking*."

6. Dr. Guidot (in his *Bath Register*) gives the following Cases. " Joseph Pleydal, Archdea-
 Guidot's Cases. " con of *Chichester*, drank the waters " in the morning, and bathed at night " for *rheumatic affections*, and full ha- " bit of body. By the use of the *Cross-Bath*, he " received great benefit."

7. " A matron of *Devonshire*, in an inveterate " *rheumatism*, using the *Cross-Bath*, received be- " nefit."

8. " William Dixie, Esq. of the county of " *Leicester*, was sadly afflicted with a *rheumatism*, " which reduced him to that degree of weakness, " that, at twenty-two years of age, he seemed " an old decrepid man on crutches. After the " best advice that London afforded, he came to " Bath rather in despair. After using the *Cross- Bath* two months, and the *pump* about one, he " recovered, and gave public thanks to God in " the *Abbey Church*."

9. " Mr. Edward Pierce (from hard lying dur- " ing the late troubles of *Ireland*) was afflicted " with the *rheumatism* all over, which, at last, " deprived him of the use of his right arm. By " drinking and bathing in the *King's* and *Queen's* " *Baths*, he received great benefit."

10. "Mr. Yorath, chaplain to Morgan of Tredegar, received great benefit in a scorbutic atrophy by drinking and bathing."

11. "Mr. Abram Corea of London received great benefit in a scorbutic rheumatism by drinking and bathing."

12. "Sir Ambrose Phillips, Knight, received cure of a rheumatism, by drinking, and bathing."

13. "Edward Washbeare, of London, sixty-two years of age, came to Bath creeping on his hands and knees, and having the benefit of Bel-lot's Hospital, used the *Hot Bath* six weeks, pumped in the Bath, and drank the waters.

"In seven weeks he walked on crutches, and perfectly recovered. I saw him, strong, erect, and found in London on the third of March, 1694, when he gave this testimony of his cure."

14. "Mrs. E. Y. of London, troubled with pustulous eruptions all over her body, by bathing and drinking received cure."

15. "Another gentlewoman having a sore running head with a briny matter, in five weeks time received a cure by drinking and pumping."

16. "Charles Child, Apothecary of Bath, having salt and acrid humours, defluxing with pain in the leg and foot, received cure by bathing ten or twelve times."

17. "John Worley, Vintner in *Clare Market*, troubled with the scurvy, and ill disposition of blood, whence eruptions of the skin, and hard bumps like the stinging of nettles, drank the waters three weeks, from seven to nine pints a day, after seven baths he was freed from his distemper."

18. "Henry

18. " Henry Johnson, a *Dane*, with old sores,
" and running ulcers in the legs, hands and face,
" received cure by the Bath in two seasons."

19. "Samuel Bret of Cornwall, came to Bath
"with a foul skin, used the Baths fourteen days
"and received cure."

20. " Mr. Richard Yorath, Clerk, received
" great benefit in a scorbutic atrophy by drinking
" the waters.

21. " Mrs. Woodcock, in a high scorbutic
" distemper much discolouring the skin, by drink-
" ing and bathing for several seasons received
" much benefit."

22. "Mrs. Cole of *Barnstaple*, (in the spleen
" and scurvy) received great benefit by drinking
" and bathing for several seasons."

In his *Use and Abuse of warm bathing*, Dr. Oliver presents us with a memorable proof.

23. " Mrs. Reynolds, wife to the bishop of Londonderry, was naturally of a very thin habit of body, and very subject to gouty-rheumatic complaints, she was about thirty. When I saw her she was reduced to a skeleton, by most excruciating pains. She had been bled largely, her blood nevertheless continued to be very fizzy. The muscles of her throat were so affected, that she could not swallow, or breathe without difficulty. The scarf-skin was dry, hard, and drawn tight over her whole body. I put her in the Queen's Bath, where she staid only a few minutes, apprehending danger from her extreme weakness. Soon after she got into the water, she felt her pains so much abated, and her throat so much relieved, that she begged leave to stay half an hour. On changing the flannel, the old scarf-skin was found cracked in many places. After " a

“ a few bathings it peeled off in large flakes,
“ thicker than the true skin in its natural state.
“ The fluids passed freely, the body plumped,
“ the skin became soft and moist. Universal ease
“ ensued.”

24. Mrs. Phelps of *Cote*, near *Bristol*, for a year and a half and upwards, laboured under a complication of ailments scorbutic, *rheumatic*, and *gouty*. She had wandering pains, biliary vomitings, diarrhoeas, legs swelled and hard, with sores unconquerable by surgical art; she was bloated, unwieldy, breathless, without appetite, sleep, or digestion. In a word she was thoroughly cachectic.

In the beginning of winter, she was, with difficulty, transported to Bath. After drinking the waters five months, her complaints, in general, began to yield. She then began to bathe, which she did but seldom. Her pains are now rare, so are her vomitings and loosenesses; the swelling and hardness of her legs are gone, the running sores have long been cicatrized, she eats, sleeps, and digests. To Bath-water, little assisted by medicine, she owes a cure which distant art in vain attempted.

C H A P. XI.
O F T H E P A L S Y.

1. **P**ALSY may be said to be an abolition, or diminution of motion, or sense, or both, in one or more parts of the body.

Definition. The very word *παράλυσις* imports a solution of that which was before firm. So is it understood, in the Gospel according to St. Luke, *Nunc solvas famulum tuum Domine.*

Many are the diseases which proceed from laesion of the nerves ; if ever there was a disease hid from mortal research, it may truly be said to be this. The nature of my present work forbids particular dissertations. I beg leave to recommend the curious reader to *Van Eems's book De Morbis Nervorum*, a treasure in miniature. Sufficient it is for my purpose to reconcile the use of mineral waters to palsies, pointing out general practical hints as they occur.

2. The remote causes of palsy are drunkenness, scurvy, dry belly-ach, air, wounds, compression, or solution of the nerves ; suppression *Causes.* of usual evacuations, apoplexy, convulsion, fear, metallic fumes, pain, dislocation, abscess, opiates, and old age.—The proximate cause is interception of the nervous fluid.

Symptoms. 3. The symptoms are evident.

Diagnosics, and Prognos- 4. The diagnostics and prognostics *ties.* are to be taken from a knowledge of the causes, and general distribution of the nerves. These differ according to the place, cause, degree, &c. *Inde lethalis, minus lethalis, sanabilis, incurabilis,* Boerhaav. Aphor. 1061.

THE

THE cause may exist in the substance of the nerve, or in the sheath. The latter may easily be cured, the former hardly ever.—

Palsy, from fullness of blood, may easier be cured than that which proceeds from serous colluvies accumulated within the encephalon.—

Unfavourable prognostics.

Palsy in the arm may be borne much longer than one in the intestines; because, while the latter continues, the chyle cannot enter the lacteals.—The higher the seat the worse. The brain is the citadel, from which the soul detaches its commands: palsies which succeed violent head-achs, impede the very origin of the spinal marrow in its continuation with the medulla oblongata; if these increase, they produce apoplexy. If the muscles which dilate the chest become paralytic, life soon ceases.

—The muscles of the throat are so numerous and so slender, that, when they are affected, Boerhaave pronounces the *casealis*.—The heart is a muscle, and may suffer a paralyis. From sudden affections, mortal syncopies have followed. Van Swieten gives an instance, “A nobleman beholding a young man stripped of his armour, just after he had gloriously fallen in battle, had the fatal curiosity to look at his face; discovering it to be his own son’s, he dropped down dead in an instant.”—“When the small pox raged among the *French Neutrals* at *Bristol*, one of the women being informed that her husband lay just then expiring, walked up to the foot of the bed, and gazing earnestly till he fetched his last breath, dropped down for ever.”—The stomach receives its nerves from the two trunks of the *eighth pair*; if a paralyis happens from an internal cause, it is to be feared, that it lies within the encephalon. If the muscular fibres of the

stomach

stomach come to be paralysed, the food lies an useless lump, the animal dies of hunger. In gluttons, the muscular fibres, by constant distension, lose their contractile power, the food passes off crude. Hence pains, lienteries, &c.—The nerves of the intestines have a singular connection with the vital functions. If these are wounded, life ceases. Iliac pains sink the stoutest into fits.—The bladder receives branches from the *intercostals*, and from the lower *complexus mesentericus*, as also from the *crural*; hence a paralysis, from an internal cause, comes to be perilous. Involuntary emission of urine denotes an affection of the brain.—A paralysis complicated with coldness, stupor, or insensibility is very bad. The blood no longer circulates, the muscles are robbed of the nervous juice. In his *Academical Experiments on Opium*, Dr. Alston, professor of Mat. Med. in the university of Edinburgh, “showed his pupils a frog, “whose hinder leg was deprived of sense and “motion. Viewing the paralysed member, we “plainly discovered the red globules dissolved, “and the vessels distended with a homogeneous “red fluid. This stagnation was the effect of “the opium, which prevented the depletion of “the muscular arteries.” *Edin. Med. Essays, Vol. V.* p. 155.

5. PAIN, sensation, heat, formication, and trembling, promise security. — Supervening fevers, and diarrhoeas, sometimes cure *Favourable prognostics.* palseies.—Palseies from plethora are easily cured.—Palseies which descend are less dangerous.—While the muscles continue plump, the prognostic is favourable. The arterious, nervous, and adipous vessels perform their offices.—Spontaneous sweats either cure, or increase the disease.—Where a paraplegy, or haemiplegy

miplegy succeeds an apoplexy, there is room to hope; because the cause of the disease decreases, the brain begins to be relieved.—When paralytics see, hear, and taste, with the back and point of their tongues, if they distinguish objects by the parts paralysed, there are great hopes of cure. Palsies are easily cured, while the fabric of the brain, medulla oblongata, spinalis, and nerves remain sound.—Whatever can attenuate the morbid matter, so as it may be dissipated and eliminated out of the body cures the disease.—Whatever changes the morbid matter from a part of the body on which the vital functions depend to one less dangerous cures the disease.—Two ounces of glutinous serum lodged in the ventricles of the brain, produce terrible symptoms.—The same, or a larger quantity of the same matter deposited in the *panniculus adiposus* of the leg, is borne without molestation.—Van Swieten says, he has seen the drowsy, stupid, and lethargic miraculously relieved by the swelling of their legs. Asthmatics have wonderfully been relieved by the swelling of the joints.—Palsies have been cured by a metastasis of the morbid matter.

Fevers naturally attenuate, dissipate, and eliminate obstructions. They sometimes deposite them on other parts. *Unde febris saepe medicamenti virtutem exercet ratione aliorum morborum.* Aph. 589.—Aph. 1017.

6. HENCE are we enabled to draw practical lessons. If we consider the wonderful fabric of the *larynx*, the numerous muscles which modulate the aperture of the *rima glottidis*; if we consider that the *pharynx*, *velum pendulum palati*, *uvula*, *tongue*, and *lips* concur in forming the voice, all which are moved by muscles; if we consider how many muscles are destined for the pronunciation of

of one single letter, we may cease to wonder why, after the cure of an apoplexy, one little pronunciation should remain uncured, while the patient distinctly pronounces other words, or letters. In dissecting living animals, I have often tied the *recurrent nerves*, that I might not be disturbed by their plaintive cries. What was the consequence? the animal became instantly dumb. Untying the ligature, they cry as before.—Wepferus tells us a memorable story of a woman, who lost her speech by the brain's being oppressed with serum. By coughing she expectorated a copious spittle, and thus recovered her speech.—De Haen (*Ratio Medendi*, pag. 224.) relates a singular instance which he cured by the powder, and decoction of the leaves of the *orange tree*. After an apoplectic stroke, the patient was subject to the following symptoms. He knew every body, and every thing, yet could not assign the name of one thing. Master of the French, Italian, and German languages, ask him questions in either, or all, he answered in the German, which before his illness he never used to do.—At this very time I attend a similar case. A gentleman who had spent the earlier part of his days in *Holland*, resided afterwards in *England*, where he was troubled with a scorbutic rheumatism, which (by warm bathing, blisters, and alteratives) seemed to be cured. From the time of the cure of the rheumatism, he seemed more or less to be affected with an asthma and cough. For this cough he drank the *Bristol waters*, during the two last summers with little alleviation. In August last, I advised him to drink the *goat whey in Wales*, and thence to repair to *Italy*, by sea, for the winter. Far beyond my expectations, (in three weeks time) his asthma vanished; he found himself so completely

completely recovered, that he gave over the thoughts of his southern voyage. In his journey from London to Bath, he found a numbness which affected one side, from the crown of the head to the sole of the foot; he dropped his whip frequently, and broke three chamber-pots on the road. Ignorant of danger, he talked of these appearances with indifference. By my advice he was bled; exceeding my advice, he took salts, which purged him four or five times a-day, and that for a whole month. Calling in one forenoon, I found him laid down, to sleep off a head-ach. His pulse seemed to be choaked, hardly to be felt. The pain occupied one hemisphere of the brain exactly, that opposite to the side first affected; this was the first head-ach he ever had felt in sixty years; his tongue faultered; in a word, he seemed to be on the very threshold of an apoplexy. I advised him to avoid sleep, to get up, and be bled, which was instantly performed. Returning in two or three hours, I found him, most imprudently, taking a vomit; tying up his arm, and pressing the orifice with my finger, I took a pound more of blood away; then proceeded with the vomit. Desiring assistance, Dr. Canvane met me in the evening. By bleeding, cupping, blistering, sinapisms, purges, &c. we seemed to gain ground; every prescription answered the intention; in about a month, his speech and understanding returned, but he could neither read, nor write his name. Unable to bear further evacuation, we ordered an issue on the top of the head, about the size of half a crown. By degrees he came to read, write, and converse rationally enough, with this particular default; the nerves appropriated to certain functions still continued to be oppressed; though he had

had clear ideas of things, he could not assign their names ; when he wanted to mention the word *pulse*, putting his finger on his wrist, he commonly said, This is fast, or slow ; he wrote sensibly enough, but his *d*'s, he made *g*'s, and his *g*'s, *d*'s. By my advice, he took the *Orange leaves* in powder and decoction for some weeks ; but, finding no sensible relief, or grudging the expence, he discontinued the prescription. Soon after, his belly began to swell with scarcity of lateritious urine. At present he can bear no evacuations, and seems to be in great danger.—From this narrative, may we not infer that physicians may sometimes be over solicitous about curing diseases ? Might not the cure of the scurvy have translated the morbid matter to the lungs ? Might not the speedy cure of the asthma have given rise to the apoplexy ? Might not the cure of the apoplexy have produced the dropsy ?

7. The general causes of palsies have been explained, so have the particular. From these it appears that nothing general can be laid down towards the cure ; for as the causes are various, so must the methods of cure. The curatory indication is to be taken from signs antecedent and concomitant. Suppose the vertebrae thrust out of their place, vain were boasted antiparalytic remedies. The ulcer must be healed, the bones must be replaced. The cause must not only be removed, but a free flux of humours must be maintained through the arteries and nerves. This last is a task not so easy. The substance of the nerves is so delicate, that it is too often destroyed by compression. The small vessels long deprived of their juices, collapse, and become impervious. Experiments teach us, that, by tying the *par-vagum* and *intercostal nerves* in live

live dogs too tightly, when the ligatures have been taken off, these animals languish, and in a few days die. Rational practitioners will therefore be cautious how they promise cures in diseases which have lasted for years. Such cripples are happy if they find amendment; rarely are they cured. Practice confirms the truth. Palsies arising from retention of natural evacuations are cured by provoking these discharges. Those from plethora have their proper cure. My business is with that common chronical palsy which arises from *inert lensor*. Let art, in this case, imitate nature. If we run over all the remedies which have been commended by the most celebrated practitioners, it will appear that they are all calculated for answering nature's purposes of raising fever, *dissolving*, and *purgung*. Boerhaave gives an instance of a Taylor's being thrice cured of a palsy by a fever.—Hippocrates gives many such instances, so does Aretaeus.—Sydenham wished for a remedy that could create a fever.—Tingling, itching, and convulsions are nature's efforts. — Profuse diarrhaeas have cured palsies. Hence, again, we learn that the art of physic never is so beneficial as when it pursues nature's steps.

Aphor. 1068, “Curatio ergo tentatur α , at-
“tenuantibus, dissipantibus, aromaticis, cepha-
“licis, nervinis, uterinis dictis, vegetabilibus
“specie succi expressi, infusi, decocti, extracti,
“spiritus, conditi. β . Salibus fixis ustione, vo-
“latilibus distillatione, aut putrefactione hinc
“electis. γ . Oleis expressione, coctione, infu-
“sione, distillatione. δ . Saponaceis ex horum
“combinatione per artem productis. ϵ . Virosis
“animalium partibus, insectorum succis, spiriti-
“bus, oleis, felibus, tincturis. ζ . Salibus fos-
“silibus,

" filibus, crystallis metallicis, et iis ex his maxi-
 " me compositis. ". His omnibus ut se mutuo
 " juvent, cum prudentia permisisti: atque ho-
 " rum quidem usu attenuatio, dissipatio, calor
 " febrilis obtinetur. 2. Validis stimulantibus,
 " et impacta quaecunque fortiter, motu nervoso
 " tremente et convulsivo excitato, excutientibus:
 " eo imprimis sternutatoria, et vomitoria fortiora
 " pertinent: si aliquoties imprimis repetuntur.
 " 3. Purgantibus per alvum calidis, solventibus,
 " aromaticis, vegetabilibus, vel et fossilibus acri-
 " bus, metallicisque mercurialibus, antimoniiis a-
 " deoque fortibus hydragogis, larga clostis, pluri-
 " bus diebus successive repetita, datis: quorum
 " ope copiosa, et aliquamdiu perdurans diarrhaea,
 " excitetur. 4. Implendo primo vas a largo potu
 " attenuantium praemissorum, dein excitatione
 " majoris motus et sudoris ope spirituum accen-
 " forum."

To expatiate on every particular contained in this text, were to repeat Boerhaave's academical prelections on the diseases of the *nerves*. Patients generally undergo medical courses before they come to Bath. The power of Bath-water is my subject only. From reason and experience I hope to prove that Bath-water answers the purposes of nature, and cures *palsies* incurable by distant art.

Sanavit natura hunc morbum attenuando, dissipando materiem morbosam; solvendo impacta per magnum febrem supervenientem, movendo per tremorem convulsivum partis, educendo. Reason directs us to those remedies which produce nature's effects. *Si causa intus haerens crassa stagnansque erit, utendum iis remediis quae producere possunt illa quibus natura hunc morbum saepe sanavit.*

After

After this great imitator of nature had extracted honey from almost every flower, he proposes at last *vapor-baths*, *immersion*, *frictions*, *plaisters*, *cupping*, *scarification*, *vesicators*, and *fustigations*.

“ *Frictiones externae siccae, calidae, ad ruborem usque, vel cum spiritibus penetrante et stimulante virtute praeditis ex animalibus, vegetabilibusque, aut cum oleis, linamentis, balsamis, unguentis, nervinis prosunt. Balnea vaporum, immersiva; emplastra acria, aromatica, attractantia; cucurbitae, scarificationes; vesicatoria; fustigations; dolorem et levem inflammationem excitantia, ut urticae et similia patient.* ”

Of vapor-baths, and warm-bathing, we have treated at large, in our *Attempt to revive the Doctrine of Bathing*. Of *frictions*, *oils*, *liniments*, *cupping*, *scarification*, *vesicators*, *fustigation*, &c. we have also spoken under the same heads.

Suffice it here in general to recapitulate, That warm water enters by the absorbent veins, mixes with, dilutes, and attemperates the blood; that active volatile mineral principles stimulate those nerves which are spread on the surface of the skin; that heat rarifies the fluids, and enlarges the diameters of the vessels; and that this same heat raises a temporary fever, which dislodges, subdues, and concocts obstructing matter so as to render it fit to be excreted by the proper emunctories. The muscles thus relieved perform their respective offices; health, vigour and agility succeed. To facts we proceed.

1. Savonarolla (De *Balneis Carpensis, rubrica, xxiii.*) says, “ *Comites Carmignola et Gattamaleta Duces exercitus Venetiarum, ambo Paralyfi affecti fuisse, pro quo morbo balnea mensis Januario sunt profecti,* ”

“ profecti, et ego cum eis, et hi mirabiliter con-
“ valuerunt.”

2. Guainerus (*De Balneis Aquensibus*) says, “ qui-
“ dam, velut Stephanus lapidatus, tam brachium
“ quam manum paralyticam habebat. Is, ut
“ praecepi, nucham sibi embrocavit, et intra octo
“ dies liberatus est.”

3. Bartholomoeus Taurinensis (speaking of the
faine Baths of *Aix*) says, “ Paralyticos duos
“ vidi sanitati restitutos hujus solius remedii
“ auxilio.”

Pierce's Cases. In Pierce's *Bath Memoirs* we find
the following histories.

4. “ Colonel Sayer, aged forty,
“ once a commander in the army of Charles I.
“ made his composition, and retired to his estate,
“ from whence he was dragged, in one of Oli-
“ ver's pretended plots, by a party of horse, and
“ carried prisoner to London, in very bad wea-
“ ther, and worse usage. He was confined in
“ a damp dirty jail, where the very first night
“ he was seized with an apoplectic fit, which de-
“ termined in a palsy on the right side. He was
“ soon allowed to retire to his home, where he
“ underwent the common prescriptions in vain.

“ When he came to Bath, he had lost the
“ sight of one eye, his speech faltered, his me-
“ mory was imperfect, with a giddiness. After
“ due preparation, he drank the waters only to
“ quench his thirst; he bathed and pumped.
“ Finding advantage, he continued to come six
“ weeks for ten years. He recovered so as to live
“ to a considerable old age.”

5. “ Mrs. Langton of *Newton Park*, aged
“ twenty-three, and with child, lost her speech
“ of a sudden, so that she uttered one word for
“ another. Thus she continued to the time of
“ her

“ her delivery, when it seized her so that she
“ could not speak at all, nor apprehend what
“ was said to her, with the loss of the use of her
“ limbs.

“ By bleeding under the tongue, and some
“ physic, she was restored somewhat to her
“ speech, she came to *Bath*, by the use of which
“ she recovered so much as to throw aside her
“ crutches. About the periods of the moon her
“ speech was altered a little. Thus she held for
“ five years, bearing children, or miscarrying,
“ till within six weeks of her time, she was feiz-
“ ed with a *haemiplegia*. After her delivery she
“ came again to *Bath* and recovered. She re-
“ turned several seasons, bore several children,
“ and died at last of the *Chorea Sancti Viti*.”

6. “ Master Powel, a child of six years old;
“ had an exquisite palsy after convulsion-fits. He
“ bathed three or four times a week, for two
“ months, getting ground apparently after the
“ first month, which advantage improved so after
“ his return, that it encouraged his friends to
“ send him again and again, till he was cured,
“ and afterwards came to be a lusty man.”

7. “ Mrs. Duffewait, an attorney’s wife of
“ *Wells*, was not only cured of a palsy, but,
“ after twelve years barrenness, conceived by
“ bathing.”

8. “ The Bath-waters have not only cured
“ *palsies*, but there are numerous instances also
“ of their acting as preventatives. Sir John
“ Gell, of *Hopton*, had a *stupor* and dullness of
“ the head, a seeming *clout* about the tongue,
“ with a kind of *creeping* and *sleepiness* (as they
“ vulgarly call it) in his arms and legs. Year
“ after year he bathed and pumped. He died

“ without any symptom of a palsy, of a *Dropsey*,
“ in the eighty-second year of his age.”

Guidot's Cases. *Of Dr. Guidot's 200 Observations,*
there are no less than 88 remarkable proofs of the power of Bath-waters in *paralytic cases.*

Author's Cases. 9. Mr. Crompton's *Faith and Hope*, now hang up as *Tabulae-votivae* in the *King's Bath*. By over-heating himself, and eating fruit, he was seized with a *cholic*, which deprived him of the use of his limbs. After exhausting the *pharmacopoeia*, he came to Bath, where he bathed and drank long without amendment. His disorder yielded at last. His cholic pains were removed, he hung up his crutches. He often relapsed, and as often was restored.

10. Mrs. Dallas lost the use of her lower limbs, after child-bearing. By bathing she had a complete cure.

IN my *Attempt to revive the antient practice of bathing*, (under the general head of *Pumping*) the reader will find particular cures of *lamenesses* from *gout*, *sciatica*, *rheumatism*, *palsy*, *scurvy*, *head-ach*, *deafness*, *falls*, &c. Under the title of this chapter of *Palsy*, I proceed to rank *lamenesses* from other causes.

I. LAMENESS AFTER FEVERS.

1. “ Sir John Austin, aged forty, had a translation of a febrile matter on one of his legs, “ which suppurated, and afterwards *Pierce's Cases.* “ gangrened. By the help of surgery, “ the wound came to be cicatrized, “ but there remained great weakness and pain. “ The limb was considerably wasted from the “ hip

“ hip downwards. He could scarcely walk in his chamber without crutches, nor be at ease when his leg was suspended. He was therefore forced to spend the greatest part of his time in bed.

“ After due preparation, and drinking, he bathed. In a week’s time he had ease. In one month’s time he changed his crutches for a staff. I saw him run smartly to get shelter from a shower. At two month’s end he went away perfectly easy and trig. By degrees the limb recovered flesh and strength.”

2. “ Sir Herbert Crofts was so much in the same circumstances that it would waste time to give a particular description. He left his crutches as a testimony of his cure.”

3. “ Mrs. Hales of *Coventry*, aged fifty, was in 1687, seized with a malignant fever, in which she was delirious near a month. A mortification appeared on the lower part of the *Os Sacrum*, near sixteen inches round, from which (as in the two former) quantities of dead flesh were cut out. The ulcer was three months before it could be cicatrized. She lost the use of her right leg and foot, both which were cold, dead, and senseless.

“ By moderate bathing, she recovered warmth and strength in five or six weeks. Next year she bathed as long. Thus she recovered the perfect use of her leg.”

II. LAMENESS AFTER SPRAINS.

1. “ Lady Strode’s daughter had gone through the hands of surgeons, ^{Pierce’s Cases.} bone setters, and others, she was lame from a sprain. By partial and total im-

“ mersion, together with pumping, she had, in
 “ a little time, abatement of swelling, then a
 “ beginning of strength, she left off crutches and
 “ walked with a stick. She went through the
 “ same process for two or three years, and was,
 “ at length, perfectly recovered.”

2. “ Mr. Pruseau, of *Essex*, and a neighbouring
 “ lady, Mrs. Bonham, had both weakness, pain,
 “ and swelling in the ankle-joint, with wasting
 “ of the limb from the hip downwards, occasion-
 “ ed by sprains. The young gentleman’s case
 “ was much the worst. They had undergone
 “ every thing that could be used by the most emi-
 “ nent hospital surgeons and doctors, who, in
 “ consultation, recommended them to Bath.

“ She came twice, and found a perfect cure.
 “ He came for many seasons, finding sensible re-
 “ lief every year. He walks much, and limps
 “ very little.”

3. Miss Alexander of *Edinburgh*, fell from her
 Author’s Cases. horse and contused her knee. She came
 “ was lame more than a year. She came
 “ to Bath, where (by pumping) she was
 “ restored to the use of her limbs.

4. Mr. Agnew came to Bath for the same dis-
 order. Sometimes he uses the hot pump, some-
 times the cold. After three months use, he
 walks without pain, and without the help of a
 staff.

III. LAMENESS FROM A RUPTURE OF THE TENDO ACHILLIS.

“ The Rev. Mr. Parsons was very healthful
 Pierce’s. “ and strong. Walking up a hill, an
 “ intolerable pain seized the calf of
 “ his leg all of a sudden, insomuch that hearing
 “ no

“ no musket go off, he thought that somebody
 “ had shot him with a cross-bow ; but being
 “ convinced of his mistake by a friend, he said
 “ he had broken something by overstraining. He
 “ fell immediately to the ground, the pain made
 “ him sweat, faint and sick, he could not stand.
 “ He was carried home, and continued lame for
 “ a long time with his limb emaciated.

“ He bathed and pumped, which brought heat
 “ into the part, it took off the convulsions, his leg
 “ and thigh began to plump. He walked five or
 “ six miles on end with a staff.”

IV. LAMENESS FROM A WHITE-SWELLING.

1. “ Mr. Bony, aged forty, was very lame,
 “ and much pained in his right knee, with great
 “ swelling, not discoloured, with the
 “ joint contracted. The whole seem- *Pierce's Cases.*
 “ ed to be puffed up with wind or
 “ uliginous matter, which, upon pressing, mani-
 “ festly moved from one side of the joint to the
 “ other.

“ The Bath gave him some ease, but lessened
 “ not the swelling, then it was pumped, after
 “ which the mud of the Bath was applied, by
 “ which he was much better ; he came a second
 “ and a third time, so that there was no remainder
 “ of tumor, pain or lameness.

2. “ Francis Hechington, of Northallerton,
 “ aged 31, came to Bath, June, 1689, with a
 “ great white swelling on his knee for six months
 “ before. He used the hot-bath and pump but
 “ five days, till the tumour was discussed.” This
 “ humour (Dr. Guidot says) was more flatulent
 than pituitose.

V. LAMENESS FROM WOUNDS.

1. "Colonel Tufton, in a sea-fight, received
 "a wound with contusion and fracture in his
 "right hand by a splinter, which
 Pierce's Cases. "broke the bones of the thumb and
 "fore-finger, and lacerated the mus-
 "cles and tendons; a conflux of humours fall-
 "ing on the part, it was forced to be laid open
 "more than once, bones and splinters were ex-
 "tracted, it was healed at last, but his hand was
 "useless, and he was pained by fits.

"He bathed and pumped, which quickly eased
 "the pain, and recovered the use of some of the
 "other three fingers. This he repeated several
 "seasons after. The fore-finger and thumb be-
 "came in some measure useful, tho' a whole joint
 "of the latter was lost. The whole hand is as
 "useful as such a hand can be."

2. "The earl of Peterborough, from a wound
 "in his right hand, came hither twice, used the
 "same method, and got much benefit."

3. Captain Robertson of *Bocland's*, received a
 gun-shot wound about the joint of the elbow,
 Author's. which was attended with pain, in-
 "flammation, swelling, &c. By pump-
 ing he recovered so as to be able to pull off his
 hat. He has now joined his regiment in Ger-
 many.

VI. LAMENESS FROM FALLS.

1. " Thomas Andrews, of *Halson*,
 " came hither in June, 1682, batter- Pierce's
Cases.
 " ed and bruised from head to foot by
 " a fall ; his horse laying upon him some time.
 " He had some bones dislocated, which were set.
 " He complained of weakness, and pains in his
 " back, hips, and his breast, so that he could
 " not breathe freely. By six weeks bathing and
 " pumping he returned much better, and, after
 " some trials, he quite recovered."

2. " Mr. Hollworthy, over and above the for-
 " mer complaints, had a paralysis of one side
 " from concussion of the brain. He was very
 " lame, and weakly. By the same methods re-
 " peated, he recovered with a stiffness that makes
 " him limp a little."

3. " Guidot's *register* contains the following.
 " Lord Hereford, in hunting a fox, re- Guidot's
Cases.
 " ceived a fall which deprived him of
 " the motion of his right arm. By
 " pumping and bathing, he recovered its use."

4. " Major Hawley had the patella-bone of
 " his knee thrice injured by falls, which obliged
 " him to use crutches. By using the Cross-Bath,
 " and pumping only seven times, he recovered
 " perfectly."

5. " Lord Eglington, by hunting the fox, had
 " a fall, by which he bruised the muscles and
 " tendons of both hands ; he received hurt on
 " his head, right shoulder, and elbow, the fing-
 " ers losing their motion inwards, numbed, and
 " senseless. By bathing and pumping, he was
 " cured."

6. "Sir Robert Holmes (in aches and bruises
" received at sea) received benefit by the Hot-
" Bath, in testimony whereof he left three brass
" rings."

FROM the opening of the *Bath Infirmary*, till May, 1760, a space of eighteen years, out of seven hundred fifty one *paralytics*, from various causes admitted, there were one hundred eighty five *cured*, three hundred ninety-five *much better*; the rest were dismissed incurable, or refractory; during the first nine years, there died in the hospital twelve only.

C H A P. XII.

O F T H E J A U N D I C E.

VARIOUS are the symptoms of the *jaundice*, various its appearances, causes and effects. We commonly reckon only *History*. two sorts, *yellow* and *black*; there are diversities of shades between the lightest yellow and the black, as Aretaeus has remarked in his book *De causis et signis morb. diuturnor.* p. 45. There are some jaundices which any body may cure; there are others which no body can. As jaundices of all sorts come to Bath, it may not be unnecessary to take a survey of this disease, so that we may be able better to form a conjecture in what sorts Bath waters may cure, and in what they may hurt.

I. THE YOUNG are rarely troubled with this disease. It commonly attacks those who brood over griefs, or who retain grudges or *Subjects*. passions. Sadness and thought constringe the vessels so as to produce a sense of weight and anxiety about the praecordia. Humours thus obstructed produce polypous concretions, putrefactions, &c.

The studious and sedentary are naturally subject to this disease, those who bend their bodies forward, and sit too long at meals. The bile, by remaining in the gall-bladder, inspissates, so that it cannot easily pass. Galen (in his book *De locis affectis*) remarks, that the very same thing happens to the gall-bladder as happens to the urinary; by retention it becomes paralytic.

2. The first symptoms are, troublesome sort of tension about the praecordia, with a sense of weight. Some hours after meals, a sort of heart-burn, the fore-runner of jaundice. A slight yellow is to be discovered in the greater canthus of the eye, the urine begins to be coloured, the excrements are bilious. Of a sudden, anxiety, with intolerable pain at the pit of the stomach, sometimes over the whole belly, often mistaken for the cholic. Fever and vomiting supervene. After these symptoms have lasted for some hours, they remit, the whole body puts on the yellow hue, with an universal itching, the urine is tinged, the patient finds himself very easy, the colour of the urine abates, so does that of the skin ; in a few days the disease seems to vanish. The excrements, some days before the paroxysm, begin to be white, clayish, or greasy.

After some weeks, sometimes months, this round of evils returns. When the sick has suffered frequent attacks of this sort, there remains at last a confirmed jaundice. The colour grows deeper, the spittle sometimes tastes bitter. The skin changes from yellow to black, the feet swell; so does the belly, the patient dies hydroptic.

Sometimes it is accompanied with fever so intense, that the liver inflames and suppurates, a memorable instance of which stands recorded by the benevolent Dundas, in the *Edinb. Med. Essays*, Vol. II. p. 345, &c.

3. This inflammation has its seat in the capillary vessels of the *Hepatic Artery*, and the *Vena Portarum*. Injections discover the seat.

windings and anastomosis's of these vessels over the whole substance of the liver. The branches of the *Vena Portarum* are filled with blood;

blood which moves more slowly than the arterial ; this is the reason why the signs of inflammation are not so manifest in this as in the other viscera ; this may be the reason why physicians have so often been mistaken in their *Diagnosies*.

4. THE remote causes of jaundice are cholics, hysterick and bilious ; poisons ; drastic purges ; grief and anger ; ossification or compression of the biliary ducts ; pregnancy ; obstruction, schirrus, or abscesses of the liver ; intermittents prematurely stopped ; stones obstructing the cystic duct ; over-grown omenta ; inflammation ; worms ; sudden chills, &c. — The proximate causes are, 1. Regurgitation and absorption of bile already separated. 2. Excess, viscosity, and acrimony of bile unsecreted.

5. THE diagnostic signs are yellowness of the skin, tunica albuginea, urine, and white excrements.

6. THE prognostics are more favourable in youth than in old age, in the strong than in the weak, in the yellow than in the black, in the jaundice single, than complicated with other disorders. In the last days of a fever, supervening jaundice performs the part of a crisis. Jaundice supervening inflammation of the liver, stomach, or duodenum, portends great danger. Natural sweat is an excellent sign. Jaundice complicated with dropsy, may be said to be incurable.

7. FROM a survey of the preceding causes, we may conclude, that most of them are merely accidental. Concretion may be assigned for the general. He who best knows how to dissolve and expel this obstructing matter, may truly be said to cure the jaundice.

In critical febrile discharges the benefit of sweating needs no explanation. Galen (*De Sanitate tuenda*) relates the following case. *Ipsum bilem, infarcto hepate, in sanguinem regurgitantem, per sudores, amaros exivisse de corpore in ictericis observavi.* Chamel (*Acad. des Sciences l'an 1737, Hist. p. 69.*) says, “ I saw a thick sweat which tinged the linen with a saffron colour, issue from the pores of an icteric woman, the jaundice vanishing after the sweat.”

From theory as well as practice, we know that the rational cure of Jaundice depends on medicines diluent, deterfive, and antiseptic, inwardly and outwardly administered. In disorders of the liver arising from hot, or cold temperament, Galen (*Method. med.*) advises internals, and externals of a strengthening quality, such are all styptic mineral waters. In jaundice, and for discussing inflations, Baccius (*De Thermis, pag. 112.*) recommends temperate sulphureous baths, he mentions Bath waters in particular. *Ad morbum regium, & ad inflationes excutiendas, nec secus sulphuratarum balnea temperata Aponus, Aquisgranam, Bathoniae in Anglia, ne vulgares, in Italia, reiterem.* *In frigidis vero hepaticis, seu qui obstructo aut indurato viscere inflantur, & cachexiam illapsi, efficiacula tam intus quam foris calorifica digerentiaque desiderantur.*

Bath-waters are diluent, deterfive and antiseptic. If fomentations have availed, what better fomentation than warm bathing ! If diuretics and sudorifics, what better diuretic or sudorific !

Distant patients have gone thro' regimens sagacious and ingenious. Bath-water improperly drank has converted slight jaundices into deadly ailments. Bath-water has cured inveterate jaundices. Van Swieten's testimony confirms the doctrine.

trine. In his Commentaries on Boerhaave's Aphorisms, Vol. III. p. 346, he delivers his sentiments thus. " *Si jam simul consideretur magnum numerum morborum chronicorum, in vicinibus abdominalibus, sedem suam habere, & imprimis in Hepate, in quod omnis sanguis venosus viscerum chylopoieticorum confluit, patet ratio quare adeo efficax sit in morborum chronicorum cura Aquarium Medicatarum usus. Magna enim copia potatae hae aquae, venis bilis intestinalium cito resorptae, integris suis viribus, pro magna parte, in venam portarum veniunt, & sic, per omnia Hepatis loca distractae, solvunt impacta, & vasa obstructa rese- rant.*" Facts are sturdy evidences.

1. Dr. Baynard (in his book of *Cold-Bathing*) records the following *Cases*. " Mr. Hadly, of an ill habit from an irregular life, had been wrong treated. He came at last to Bath. He complained in the right hypochondria, and had a great induration in the region of the liver. By purging, drinking, and bathing, he got a perfect cure." *Baynard's Cases.*

2. " I knew a physician who had a severe *jaundice* with a schirrous liver. He was cured by drinking Bath-water, and by eating the herb *Taraxicon* fallad-wife."

3. " Madam Thistlewaite, of *Winterfloe*, received a great cure by the Bath-waters, joined with other aperitives in as high a *jaundice* as ever was seen, which had long seized her, and she a very lean emaciated worn out weak woman.—In this case, and also in most diseases of the liver, I think the Bath-waters the best specific in the world, if taken seasonably with due preparatives and advice."

4. From Dr. Pierce we have these. " *Justice Dewy of Fordenbridge, Hants*, came hither in *February, 1693*, in the sixtieth year *Pierce's Cases.* " of his age. His complaints were " (besides the yellowness of his skin) " weakness, faintness, decay of spirits, shaking " in his hands, pain in his limbs, doughy swellings " of the legs, clamminess of his mouth, drought; " and foulness of tongue.

" He had but lately undergone purging, and " therefore had the less need of preparation. He " took at first but two pints, then three, then two " quarts, seldom exceeding. They passed freely " by stool and urine.

" Between whiles he was however purged with " *Rheubarb* and *Calomelanos*, he took alteratives, " and now and then intermitted the waters. A- " bout the middle of his course he was let blood; " which had a quantity of serum tinctured yel- " low. About the latter end of his course he " bathed three or four times. He had before bath- " ed his legs and feet to get down the swelling, " which answered.

" He apparently got vigour and strength, a " clearer countenance, and a better habit of " body. Thus he returned after two months. " stay. He returned in *May*, stayed about the " same time, with manifest advantage, which I " suppose he yet continues to have, because he " returns not to the same means by which he " found so much good."

5. " *Michael Harvey, of Clifton, Dorset*, aged " sixty-six, many years subject to the *Gout*. Fif- " teen years ago, in one of his fits, he turned " yellow, took medicines for the *Jaundice*. In " April last, he was seized with a violent pain in " his stomach, which pain he was subject to by

“ fits, but was now more than ordinary fainty,
 “ the jaundice appearing presently in his water,
 “ but not in his eyes, face and skin, till about a
 “ month after. By the advice of Radcliff and
 “ others, he took medicines to little purpose.

“ He came to Bath the last day of August,
 “ 1696, so weak and ill that he could hardly
 “ keep life in him. The night after he had a
 “ most violent cholic fit, in which he strained
 “ very much to vomit. He was yellow all
 “ over.

“ He set presently about drinking the waters,
 “ (being in continual pain, and stomachless) but
 “ at first in small quantities. The third time of
 “ taking them, he voided a gall-stone about the
 “ bigness of a pigeon’s egg, with several lesser
 “ pieces of the same colour and consistence, a *sa-*
 “ *bulum* to the quantity of a spoonful and more.

“ It is observable that this gentleman had a
 “ stool before the stone came off, as white, and
 “ like to tobacco-pipe clay; but the stool that
 “ came with and after the stone, was as yellow
 “ as saffron. He was immediately more at ease,
 “ he recovered by degrees; he goes on drinking
 “ the waters, this being the one and twentieth
 “ day of his cure, walks abroad, gives visits, eats
 “ heartily, and is very likely to recover perfectly.”

6. Dr. Guidot records this *Cafe*. “ A worthy
 “ Knight of Devonshire, (in obstruc- *Guidot.*
 “ tions of the Liver and Bladder of
 “ Gall) by drinking the waters twenty-one days
 “ at the pump received great benefit.”

7. The Reverend Mr. Lyon, aged sixty and
 upwards, of a gross habit, swarthy
 complexion, and choleric disposition,
 had laboured long under an inveterate
scurvy. His legs swelled, were hard, and discoloured

*Author's
Cafes.*

loured with large deep foul ulcers. For this disorder he came to Bath.

He drank the waters in too great a quantity. He tarried in the hottest part of the kitchen of *King's Bath*, sweating, scrubbing, and broiling, for one hour and a half at a time.

I often gave him warning that there was danger of throwing inflammation on the liver, already vitiated and obstructed, as is the case in *Scorbutics*. He laughed at my prognostic, scorning the dull beaten track, as he called it. In excessive drinking and bathing he persisted.

My prognostics were at last verified. I found him one day very ill indeed. He had every symptom of the *jaundice*, rather black than yellow, a high fever with fixed pain in the region of the liver.

I ordered him immediately to be bled. Next day, he took a gentle purge of *Senna*, *Rad. Curcum. Rub. Tinctor.* &c. which (as is common in cases of unsound livers) operated so immoderately, that his pulse intermitted. His spirits flagged. Nature was on the point of yielding. He then wished he had followed the dull beaten track.

By some little helps the symptoms abated, he recovered strength. During this reprieve, I ordered him to take two drachms of nitre thrice a day, in a large glass of Bath-water, a medicine highly commended by *Heister*. He swallowed as much soap as he pleased. I indulged him in the free use of Rum-punch, enriched with sugar and the juice of Seville-oranges. I advised him to eat freely of China oranges.—Never was a patient more tractable.

His *Jaundice* gradually went off. His foul scorbutic ulcers cicatrized. The cure of his *jaundice* proved the cure of all his ailments. By the help

help of soap and lime-water, he continued (ten years) as well as a man of his age and habit of body could be.

8. Mrs. Elliot, of *Golden Square, London*, laboured under a constant vomiting, with racking pain about the orifice of the stomach. She had neither retained food nor medicine for a month. This was the case described to me by her brother-in-law, my late worthy friend Capt. Wilkinson, Agent. Supposing her complaints owing to biliary concretions then passing the *Duct*, I told him that hers was truly a Bath-case. My opinion was related to an eminent physician then attending. He roundly pronounced Bath-water pernicious in all respects. Dr. Girningham was called in. He adhered to my opinion.

With great difficulty she was transported to Bath. When I first saw her, her pains were exquisite, she threw up laudanum and every other thing. She was lodged in one of those houses from whence there is a *Slip*, or communication into the Bath. I advised her to drink a glass of water at any time in bed; and, as fast as she threw that up, another, and so continue till she was sure that the water began to stay on her stomach. She was also carried into the bath, sometimes twice in a morning, and there supported till she began to vomit. While she was in the bath her pains ceased. In a few days the water began to stay. At once she passed twenty-two gall-stones, as big as beans and pease, by stool. At different times more.

Her pain vanished. From a skeleton (in less than three weeks) she grew plump, and walked on the parade. The only medicine that she used was a deobstruent gentle purge of *Rhubarb Rad. Curcum. Rub. Tinctor. &c.* with *Castile soap*.

She

She went home. Her complaints returned. She came again to Bath, where she pursued the same regimen, and found her cure. Profiting by experience, she staid six months; during which time she drank about a quart of water a day, and swallowed two pounds and upwards of soap every week. For these eight years past she has enjoyed perfect health, excepting grumbling remembrances of her pain, which she continues to lull by the constant use of soap and Bath-water, warmed at home."

9. Every inhabitant of Bath knows how deeply Mr. *Levellyn*, builder of this city, was tinged with the jaundice. Every body saw him restored to his usual tint. He tried various Doctors, and various nostrums. He, mean while, drank the Bath-waters, and, without them, it is more than probable, he never could have recovered.

C H A P. XIII.

O F T H E D R O P S Y.

1. **W**HEN the serum comes to be extravasated, and stagnates in any of the cavities of the body, that disease is called *Dropsey*. *Definition.*

2. It may arise from many causes. *Cause.*
My business is with those only which countenance the *rationale* of Bath-waters.

3. Its symptoms are too apparent to want to be enumerated. *Symptoms.*

4. The curative indications are, to procure a free circulation of the juices. To carry off the liquor deposited in the cavities. To correct that fault or indisposition of the parts, whether it be the cause or effect of the disease. *Cure.*

Strengthening, stimulating cordial medicines answer the first, especially those which are gratefully acid, and gently aromatic.

To obtain the second, the cause of the obstruction must be found out. This must be removed or corrected, which is often done by *Mineral waters*.

Steel medicines, and strengtheners gently astringent answer the third intention, given in a proper dose, and seasonably administered.

Friction, motion, and heat greatly conduce. If the pressure of water be 800 times greater than that of the atmosphere, how can we wonder that (in *Anasarca*'s especially) this pressure should thus drive the humours into their proper channels! There are many examples of dropseys cured by *Diuretics*,

Diuretics, vitriolate metallic medicines dissolved in water; such have been specifics.

Analogical Proofs. In the writings of the antients we find well authenticated cures of *Drop-sies*.

Baccius (*De Thermis*, pag. 112.) says, *Occurrit aqua Grottæ omni incipienti hydropisi. Tungri aquam in Burgundia mirificam tradunt in hydropicis, ut quae aquas evacuat ebibita jure balnei, flatum discutit, & tamen sitim extingueens. Bergomenses Trascherii aquam experimentis commendant. Quae uteri vitio, velliens, coacervati solent humiditates, in Ascitis specie principio, vidimus nitratas, & salsulas quosdam modice purgatorias sanasse in totum. Salsarum balneo in Lesbo curari hydropem meminit Galenus. In Tympanite discussoriae omnino facultatis esse oportet aquas, sive in potibus principio, sive in balneis in fine; idonea quoque est e vaporibus ipsarum calidarum evacuatio, nec minus super saxa, harenasque calentes, sub sole recubitus insolatusque. In Hyposarca assiduo praeter cetera profundit illutamenta, & in marinis, salsis lacunis, atramentosis paludibus, in sulphurosis callidissimis, quantum vires sufficiunt, lavari. His (inquit Celsius) sudor evocandus in arena calida, Laconico, clibanico, similibusque. Maxime utiles naturales & siccæ sudationes. Arena e littore maris sole fervefacta capite tenus hydropicis obruta, vulgaris praesidii est. Incomparabile remedium ad oninem hydropem in pulvere ad aquas calidas in Ischia voluntari, atque insolari. Ex plumbō balnea in Lothoringis omni hydropico permira habentur cum lutamentis. Aridum & valde potens Stygianum ex nostris, non longe ab urbe, & Sabatinum, Bullicanum, Thermae in Sicilia, quae omnes calidae ad hydropem valere, ab auctoribus promittuntur. Omni autem hydropi ex salsis clysteria utilia sunt. Nec minus Stuphae, hypocausta, pyrateria.*

Guianerus

Guianerus (*De Balneis Aquensibus, cap. 3.*) says,
 " Asciticam his aquis balneari jussi. Haec etiam
 " mane pintam unam illius aquae bibebat, & die
 " alia in vesperis solum balneum intrabat; ali-
 " quando tres pintas mane bibebat, & per dies
 " XL hoc continuans liberata est."

Ugulinus (*Des Balneis Comitatus Pisarum*) says,
 " Vidi ego multos in usu Balnei hujus *hydropicos*,
 " & i^{ct}ericos curatos."

1. Pierce (in his *Bath Memoirs*) gives the following. " George Russel, a tippling butcher of
 " this city, (by going too often to
 " the ale-house) rendered himself un- Pierce's
Cases.
 " able longer to go to market, he
 " turned sheriff's bailiff, &c. and then drank on,
 " till he had distended his carcass as much as he
 " had extenuated his stock. He was swollen
 " from head to foot by an exquisite *Ascites* and
 " *Anasarca*, and, as is usual in that distemper,
 " was excessive thirsty; the more he drank, the
 " more he craved for drink, and the less he dis-
 " charged by urine.

" I first prescribed drastic purges, then Bath-
 " water, which quenched his exorbitant thirst,
 " as indeed it infallibly does beyond any other li-
 " quor. They pasted also so well by urine that,
 " by repeating his purge once a week, and drink-
 " ing the waters, he was reduced to his pristine
 " shape. Ordering then some strengthening bit-
 " ters, I dismissed him perfectly cured. So he
 " held two or three years, but he returned to his
 " beloved tipple, till he brought himself to the
 " same pass; and, without consulting me, by
 " the apothecary's advice, he repeated the same
 " regimen with the same success; and so for a
 " third, if not for a fourth time, till at last,
 " with continued drinking, bangs, and bruises
 " to

“ to which *Bailiffs* are subject, he so corrupted
“ his entrails, that he died of an inward impo-
“ stumation.”

2. “ Mr. Treagle, of *Taunton*, grocer, aged
“ forty-six, had long been *scorbutic*, *nephritic*, *ca-
cheetic* and *hydropic*. Finding no relief from any
“ medicine, he came hither with his legs and
“ thighs greatly swollen, and so weak that he
“ was hardly able to stand ; he had large red livid
“ spots in both ; he made very little water, and
“ that jaundiced ; his eyes and face were of the
“ same complexion, withal horribly desponding
“ and melancholy.

“ For the first week I purged him, made him
“ take *chalybeates*, *hepatics*, and *antiscorbutics*, in-
“ termixing the waters now and then. By these
“ his countenance, and the colour of his water
“ was somewhat changed. By drinking, mode-
“ rate bathing, and purging, the shape and co-
“ lour of his legs were also altered. At the end
“ of six weeks, he returned very much advan-
“ taged in every respect. He carried home di-
“ rections for a *diet-drink*, for which I had his
“ thanks some years after.”

3. “ Much in the like, if not worse circum-
“ stances, was one *Appleton*, an inn-keeper, in
“ *Crookhorn*, a man aged about sixty ; besides the
“ foregoing symptoms, he had a cough also, he
“ neither could walk nor stand.

“ He bathed and drank the waters, took *pepto-
rals*, *antiscorbutics*, and *hepatics*. He returned
“ well, and came back next year to confirm his
“ cure. Again he returned, goes about his busi-
“ ness, and probably drinks with his guests, in
“ which he never was backward, and which was
“ supposed to be the cause of his distemper.

4. “ Sir

4. " Sir Robert Holmes, whom we have already recorded, cured of *batters* and *bruises* in sea-fights, came here for a *colica pictonum*, a *trophy*, and *dropsy*, of all which he was cured, recommended his friend Mr. Warner, *Mayor of Winchester*, who, after a fit of the *gout*, had his legs and thighs very much swollen and discoloured with large scorbatic spots; he made a lixiviate water in small quantities, had little or no appetite, with great thirst.

" I began with gentle purgatives, then put him upon drinking the waters; and, after convenient time, permitted him to go into the *Queen's-Bath*. His swelling abated, his pains asswaged, his strength returned, so that in less than two months he went back greatly advantaged in every respect."—" I might add several other instances of this kind, but I forbear for fear of enlarging my book beyond its intended bulk."

Of the external and internal effects of cold water, Baynard (in his book of *Cold baths*) gives us the following. " A wine-cooper, who

" had been a free liver, fell into a *Baynard's Cafes.* jaundice, thence a *dropsy*, the *ascites*.

" He applied to Sir Thomas Witherly, president of the college of physicians, who treated him in the usual methods, but nothing would do. " He prodigiously swelled all over. Forsaken by friends and physician, he begged his wife to carry him to *Islington-wells*, there for once to quench his thirst insatiable, and die in peace.

" From between 4 in the afternoon to 9 or 10 at night, he drank 14 quarts, without making one drop of water. He sunk down in the chair in a clammy sweat. Thence being laid on the bed for dead, in half an hour's time, the people heard something make a small rattling noise like

“ a coach in a distant gravel-way. Soon after he
“ began to piss, and pissed in an hour’s time about
“ 7 or 8 quarts; from the weight of the waters,
“ he also had two or three stools. He began to
“ speak, and desired a little warm sack, after
“ which he fell into a profound sleep, in which
“ he both sweat, and dribbled his urine all that
“ night. Next day, he drank 4 or 5 quarts more
“ of water, had two stools thin and waterish, still
“ pissed on. For five or six days he drank on,
“ taking mutton-broth, and so recovered. The
“ relation of this unaccountable cure had for ever
“ been lost, had not Sir Thomas accidentally met
“ with the good woman his wife, about two
“ years after, and asking her, how long her hus-
“ band had lived after he had left him? She re-
“ plied, pointing to a little slender man standing
“ by her, *there he is, this is the husband who was*
“ *your patient, and who recovered by turning his own*
“ *physician.*”

Of the external use of cold water, the Doctor gives two remarkable instances.

1. “ James Crook of *Long Acre*, had *dropsy*,
“ *jaundice*, *palsy*, *rheumatism*, and an inveterate
“ pain in his back.

“ In three immersions, the swellings of his legs
“ sunk, so did the pain of his back, as did the
“ jaundice, blowing from his nose a great quan-
“ tity of a bilious yellow matter. From the frigi-
“ dity and pressure of the fluid we may account for
“ his pissing more than he drank; but, how the
“ i&eteric matter should be thrown off by the nose,
“ he who can tell, *erit mihi magnus Apollo.*”

2. “ A Scotchman, in an *ascites*, was cured.
“ By his girdle which I saw, he fell six inches in
“ five days, pissing freely all the time.”

C H A P. XIV.

OF FEMALE DISEASES.

HIPPOCRATES (*De locis in homine*) may well be said to have spoken from experience, when he said, *αἱ υἱεραι πάντων τῶν νοσημάτων αἴται εἰσιν. Omnia morborum causae sunt uteri.* *In general.* Besides those diseases which equally affect men and women, there are some peculiar to the *fair sex.* Humanity obliges me to point out those aids which may be had from the waters. Respect obliges me to mention but few names, and those of persons long forgotten.

I. OF OBSTRUCTION.

1. OBSTRUCTIO, *chlorosis, febris alba, amatoria, morbus virgineus, iélerus* *albus*, and *green sickness*, are different names only for one and the same disease.

2. The remote causes of obstruction are sudden chills, viscid food, fear, grief, excessive evacuations, astringents, other diseases, &c.—Its proximate are, Rigidity of the uterine vessels, Cachexy, Compression, and Lentor of the humours.

3. The symptoms are, pain and heat of the loins, pulsation of the arteries, headache, want of appetite, languor, shivering, slow fever, thick red urine, inflammation, suppuration, gangrene, varicous swellings of the veins of the legs, vomiting, anxiety, cough, palpitation, fainting, vertigo, apoplexy, *Symptoms.* *madness,*

madness, green sickness, longings, fluor albus, and various haemorrhages.

Prognostics. 4. The prognostics vary according to the symptoms, time of suppression, age, and causes.

5. In rigidity of the vessels, relaxing fomentations with tepid baths avail. In languor, or sluggish circulation, warm baths are also indicated. In poverty of juices, Bath waters are internally indicated. From melancholy or despair, a fiddle and company are specifics.

From Pierce's memoirs we have the following.

1. " Mrs. Elizabeth Eyles, of the *Devizes*, aged *Pierce's Cases.* " sixteen, was very far gone in this disease with hysterick fits, she was " pale, thin, stomachless, faint and " tired upon the least motion. She had tried me- " dicines at home to no purpose. The same me- " dicines with bathing, and a little water inter- " nally, restored her (in six weeks time) to her " appetite, complexion, and customary benefits " of nature."

2. " A daughter of lady Berifford's, aged nine- " teen, was brought hither June, 1693. She " was, in all respects, rather worse than the for- " mer. She bathed and drank. At the end of " seven weeks she went off so well, that she want- " ed no help of the physician.

3. " Mrs. Eliz. Wayte, aged 20, besides the " symptoms of the first, had the jaundice, scur- " vy and dropsy in her legs and feet. She was " short-breathed to a degree, hot, and inclining " to a hectic, with palpitations. She drank and " bathed. In five or six weeks she walked in " the meadows, recovered her appetite, com- " plexion, flesh, and spirits."

4. " Miss

4. "Miss La Chambre, aged thirteen, of the very complexion of the chalk, mortar, and other trash which she used to devour, was faint, tired, heavy-headed, &c. I began with a vomit and purge. She then drank and bathed. In a few weeks she rejoiced more at the sight of a shoulder of mutton than a handful of clay. The waters gave her new life and vigour, she became a healthy young woman."

It is not the eating of chalk, charcoal, salt, or such trash that brings on the green-sickness. The disease depraves the appetite, and thus creates a longing after things unaccountable. The foregoing observation proves the fact.

From Guidot we have drawn the following.

5. "Mrs. Manwaring of Cheshire, (in full habit and obstructions) received benefit by bathing in the King's and Queen's.

When the catamenia are obstructed through poverty of blood, or its bad disposition, the symptoms enumerated in the foregoing section appear. The same method of cure will enable nature to perform her work.

6. "Madam Constance Harvey in a cachexy, or ill habit of body, joined to inveterate obstructions, received cure by bathing and drinking, August, 1673.

7. "Mrs. Margaret Hall, of Ross, received cure of a cachexy, and great obstructions by drinking and bathing for a month, June, 1673."

8. "Miss Finch, of Reading, in the same case, received great benefit, 1693."

9. "Madam Barber, in the spleen and obstructions, received great benefit, 1693."

II. OF IMMODERATE DISCHARGES.

UNDER the head of diseases specifically cured by Bristol waters, I propose to treat on the subject of female discharges. Let it suffice, in this place, in general, to observe, that in sanguine plethoric habits, Bath water aggravates every symptom.

If the discharge is *white*, if the blood is impoverished, if the disorder arises from a general *Fluor albus*. cachexy, or bad disposition of the juices, Bath-water is an excellent internal medicine. By correcting the bad disposition, it performs the cure. If to these are joined internal ulcers, strains, or violences of any sort, warm-bathing will facilitate the cure.

Dr. Pierce gives the following cases. "A gentlewoman of forty-three, of a sanguine com-

"plexion, of a scorbutic habit, had a-
Pierce's Cases. "bout midsummer, 1679, a violent

"eruption of the *fluor albus*, which
"continued for a year. She took all that farra-
"go of astringents which is commonly prescrib-
"ed by apothecaries, midwives and nurses, to
"very little purpose. She had pains, weakness
"and stiffness in her joints, for which she came
"to Bath in *May*, 1680.

"I put her first on drinking the waters, which
"took off the sharpness of the flux; and eased
"her pain, though the abatement in quantity was
"but small. For her external pains she bathed,
"and drank the water between whiles. The
"bathing was so far from increasing the quan-
"tity of the *fluor albus* (as idle theorists imagine)
"that it lessened it considerably. After six weeks
"she went home, where (by a decoction of the
"woods,

“ woods, ivory, hartshorn, &c.) she recovered
“ perfectly.”

2. “ A citizen’s wife of *Bristol*, aged thirty-six, had a discharge of such variety of colours as easily demonstrated excoriation or ulcer. I ordered her to drink, bathe, and inject the water. By these and the help of balsam- ics and astringents, she returned well in two months.”

3. “ A tradesman’s wife of *Cirencester*, about a fortnight after her delivery, was taken with a violent pain in her flank, with some swelling, which came (in two months) to be large, hard, and tender to the touch. A green fetid matter was discharged. I ordered her to drink the water, bathe, and inject. The hardness abated, the gleet ceased, she brought forth many children, and is now a buxsome widow.”

4. “ Guidot’s Register informs us of the case of a noble lady, who the very first day that she entered the *Cross-Bath*, found herself cured of a *prolapsus uteri*, which had been down for eighteen years.

III. OF BARRENNESS.

In his book *De Thermis*, Baccius has rationally accounted for the causes of sterility; he has rationally also pointed out the cure. According to him sterility proceeds from diverse causes, and, therefore, requires diverse methods of treatment. In hardness of the uterus, emollients and humectants are indicated, in dry hot temperaments especially. Virago’s are born with a natural hardness of the uterus; they labour under three causes of sterility, heat, dryness, and hardness. These can be corrected only

by assiduous use of tepid emollient baths. For the purpose of conception, Baccius Cure. declares that there is no other sort of remedy so certain or salutary as natural baths, provided they are duly and rationally administered. *Ad spem sobolis non reperi aliud remedii genus neque salubrius, neque experientia certius, quam balnea ipsa naturalia, si debite, ac ex ratione ministrata sit*, page 117. If sterility proceeds from humidity, or superfluity of humours, or weakness, it requires baths drying, and not much heating, ferreous, or aluminous. These may be used externally and internally. The *Balneum Caiae*, at *Viterbo*, got the name of the *Lady's Bath*, from its particular virtue; so did the *Aponum*. The *aque caldanellae* were said *fluores cohibere albos mulieribus, et gonorrhacam viris vimque illis generativam adaugere*.

IN schirrous hardness, and swellings of the womb, warm mineral waters injected, or received by vapour conduce, while total immersions rather exasperate. Fourteen years ago I met with a case which proves the position.

1. A married lady came down to Bath with a hardness, and swelling of the uterus. By the advice of an eminent physician, since

C. f. dead, she bathed upwards of twenty times in the *Queen* and *King's* baths. By constant bathing her flesh wasted, she became hectic. Her original complaint continued hard, and became painful. Despairing of cure, the Doctor told her at last, that her disorder was chirurgical, and out of his way. When I met her she was preparing for her journey, and had sent away her cloaths. She told me what had been done, and begged my opinion. I told her, that the worst of her complaints were the effects of *improper bathing*.

ing. I advised her to go to the country, and drink asses milk for a fortnight, and return, which she did. I then directed her to let her maid throw up a pail of warm Bath-water by the help of a flexible syringe, every night at home, which she did. By degrees the pain abated, the swelling diminished, and grew softer, she recovered flesh daily. I then recommended her to Dr. Smellie, who completed her cure with emollients, so that in about eleven months he delivered her of a child.

From Dr. Pierce's *Memoirs*. I have extracted the following cases.

2. "Mrs. Duffwaite was twelve ^{Pierce's Cases.} years married without conceiving once. She came to Bath for a palsy. After bathing the second season, she returned home well, and, in a month after, conceived, and had five lusty children at different births."

3. "Mrs. Hawkins, of *Marlborough*, forty years old, had been married thirteen or fourteen years without a child. She came hither for lameness. By long bathing, she not only got her legs, but her belly up also five different times."

4. "Lady Blissington, a weak sickly person, married for years, and childless, bathed and drank. By God's blessing, she not only got her health, but became a mother also."

"This is an effect (says the Doctor) so very well known, and so generally believed; that when any woman comes hither that is childless, they presently say, *she comes for the common cause*. To instance all who have sped in this errand since my living here, were to fill a volume."

5. "Mrs. Clement, of *Bristol*, aged forty, had several children, but buried them all. She had

“ not conceived in nine years. She came and
“ bathed for *rheumatic pains*. Soon after she con-
“ ceived, and brought forth twins.”

6. “ The very same happened to a worthy
“ gentlewoman, Mrs. Horton, of *Comend*.”

7. “ Mrs. Davers, of *Monks*, had eight chil-
“ dren, but being ill of a scorbutic habit, with
“ weakness of her limbs, she bred not for six
“ years. I ordered her the bath, which, with
“ other helps, restored her health. Soon after her
“ return she conceived, and brought forth a son.
“ She came to Bath again, fearing a relapse. By
“ drinking the waters only, she soon conceived.
“ She had afterwards two miscarriages, and a
“ lusty boy at forty-four.”

IV. OF ABORTION.

*Prevent mis-
carriage.* THERE are not wanting instances
of women apt to miscarry, who, by the
use of mineral waters, have been en-
abled to go through with their burdens.

In such cases Baccius gives numerous instances
of the power of the *Porretanae*, *Albulæ*, and
many other detergent strengthening waters, in-
ternally and externally applied.

Savonarola (*De balneis vallis Chaim vulgo dict.*
balnea dominarum) expresses himself thus. “ This
Collateral proofs. “ bath has received great commenda-
“ tion in disorders of the womb, in-
“ *passionibus matricis*, by preparing it
“ for conception, cleansing, - absterging, and
“ strengthening all those faults which proceed
“ from causes cold and moist. It provokes the
“ menses. For such purposes, the ladies frequent
“ it daily, *pro bisque passionibus mulieres indies id*
“ *in vadunt*.

1. Guianerus (*De balneis aquensibus, cap. 3.*) relates the following memorable case. "A certain lady (by reason of an obstinate white flux) could not conceive. The matter was sometimes so fetid, that she loathed herself. After due preparation, she used the warm bath, and drank the water. Thus, cured of the *whites*, she went home, conceived, and in due time, brought forth a boy, *menstruis albis purgatis, domi praegnans facta, puellum enixa est.*"

2. "Mrs. Sherrington, after many miscarriages, came, bathed, and drank the waters for five or six weeks. In three years, she brought forth three children at different births." Pierce's Cases.

3. "Mrs. Howard, formerly maid of honour to the Dutchess of York, conceived ten times, but never carried any to the full time. She came and bathed five weeks. Soon after her return she conceived, and brought forth a daughter in due time, as she did afterwards a son."

4. "Lady Kilmurry miscarried thrice. She used the bath only five weeks, returned, conceived, and carried her burden to maturity. She miscarried twice or thrice again, came back, bathed again. In due time, she had a daughter."

V. OF PREGNANCY..

INSTANCES of women who have drank and bathed during their pregnancy without miscarriage.

1. "Mrs. Howard, of Yorkshire, came hither May, 1690, for a weakness in her lower limbs, for which she bathed six or seven weeks till she was cured. She was

*Water safe,
during pregnancy.*

“ young with child just before she set out for this place, as appeared afterwards by her reckoning, when she was brought to bed of a lusty girl.”

2. “ Mrs. Floyer had often miscarried, she was very hysterical. She was with child all the time while she bathed and drank, as appeared by the time of her delivery of a son, the strongest she ever had. She passed her month better than ever, which was imputed to the bathing.”

3. “ Lady Cooke, the wife of a city knight, came down with some relations for pleasure. As she was here, she was willing to bathe for some pains which she was subject to in her limbs, but was doubtful, knowing herself to be young with child. She consulted me. I advised the Cross-Bath with moderation. She bathed fifteen times, and was then two months gone, as afterwards appeared by her being delivered of a full-ripe child.”

4. “ Lady Scarborough came to the Bath for lameness after rheumatism, gout, &c. She bathed even to excess after she found the child quick, imputing the motion only to wind. She miscarried not, for she was, at due time, delivered of a daughter which they called by the nick-name of the *Bath-girl*.”

5. I remember an instance of a lady’s maid, who (to create miscarriage) bathed often in the hottest baths, and to no purpose.

Women guides. WHEN night-baths were more in fashion, our *women-guides* were in the water sometimes eight or nine hours a day; many of them have been with child, without miscarriage.

Pudendorum vitiis minerales aquae valde convenient, says Baccius, p. 118. *Sunt enim haec natura-
liter siccae, ac siccis ex aequo medicamen-
tis haec loca indigent. Humida saniosa, ac fistulosa sedis ulcera, et quae uteri cer-
vicem ob siderint, non possunt ullis aquae* Bathing use-
ful in ulcers
and cancers.
prae sidiis per curari, quam naturalibus balneis; tum
aquis, de more, bibitis, tum iisdem per catheterem in
*loculos ipsos infusis, et calefaetis hiemo, quibus nos fe-
liciter usi sumus, etiam in saevo ulcere intestini caeci,*
quod penetrans, tractu temporis, foras in inguen, ex
ipso ulcere (mirum) ebibitas reddebat aquas. — *Percu-
ratam similiter per ejusmodi balnea in Aenaria scimus*
illustrem Dominam Neapoli, quae cancrum occultum
medicorum judicio, aut schirrum alioquin incurabilern,
inter abdomen et uterum erat diu per pessa.

WEAK ricketty children find constant relief by bathing. In my *Attempt to revive the practice of bathing* I have quoted examples.

O F

D I S E A S E S
 C U R E D B Y
 B R I S T O L W A T E R.

C H A P. XV.

O F D I S E A S E S O F T H E B R E A S T.

U NDER the general head of *Diseases cured by Bath Water*, I have given convincing proofs of the power of Bath water in disorders of the breast. Custom has appropriated disorders of the breast to Bristol Water only. In compliance with custom, I have reserved the particular disquisition of such disorders to this chapter. To the study of *Consumptions*, I have given particular attention. I have pried into almost all the boasted nostrums. With the sagacious GILCHRIST, I ingenuously confess that, in proportion to my experience, my faith abates. Rationally to account for the operation of the waters, now my purpose briefly to distinguish the different diseases of the breast, with their *subjects, causes, symptoms, stages, diagnostics, prognostics, regimens, and method of cure.*

I. O F C O U G H , O R C A T A R R H .

Definition. 1. Cough, or Catarrh is a convulsive endeavour to expel whatever proves offensive to the lungs.

2. IT

2. It is divided, into thin and sharp, *Division.*
or into viscid and inert.

3. The first is occasioned by sudden chills,
winds cold and moist, east and north
particularly, sudden changes, thaws, *Causes.*
wet cloaths, relicts of former diseases, measles,
small-pox, &c.

4. The second takes its rise from laxity of the
solids, indolence, moisture, night studies, crude
cold and watery diet, &c.

5. The symptoms of the first are shivering, la-
situde, watery inflamed eyes, flushed coun-
tenance, shortness of breathing, tickling
and inclination to cough, especially *Symptoms.*
towards night, plentiful secretion of urine, quick
hard pulse, itching and running of the nostrils,
sneezing, inflammation, and excoriation of the
membrana sneideriana, hoarseness, spitting of blood,
and pulmonary phthisis.

6. In the viscid catarrh, respiration labours, the
lungs are oppressed with frothy mucus, the cough
is chiefly troublesome in the morning; the mat-
ter expectorated is whitish, bluish, and globular.
These are succeeded by tubercles, suppurations,
and pulmonary consumptions.

These symptoms are easily accounted for. Of
all causes, the most common is cold. *Causae ex-
ternae quae prohibere solent perspirationem sunt aer
frigidus, caenosus, humidus, &c.* says *Sanctorius*.
The *membrana sneideriana* suffers by its com-
munication with that membrane which covers
the inside of the lungs. The internal and exter-
nal parts of the thorax and abdomen become
convulsed, because they are covered with the
same nerves with the lungs, the eighth pair, and
intercostals.

7. The convulsive cough is more inveterate, and attacks children, commonly called *Chincough*.

Convulsive cough. In this, inspiration continues for some minutes; when it begins, it is performed by a sort of hissing, snoring, and clangor, occasioned by the coarctation of the glottis. Little or nothing is thrown up. The stomach is often provoked to vomiting. Fever supervenes; ulcer, haemoptoe, and phthisis follow.

Cause. 8. The cause of this species seems not yet ascertained.

II. OF CONSUMPTION.

1. EVERY disease that wastes the body may, strictly speaking, be termed consumption. This *Definition.* is a wasting of the body accompanied with hectic fever, cough, and purulent spitting. In this country consumptions may truly be said to be endemic. The general constitution of our air is cold, moist, and variable. Laxity of solids, languid circulation, and retention of humours are natural consequences. Diseases arising from such solids and fluids, are coughs, catarrhs, hectic fevers, empyema, haemoptoe, sweating, asthma, &c. It is called a pulmonary phthisis, because it has its seat particularly in the lungs.

Division. 2. It is distinguished, 1. Into ordinary and symptomatic. 2. Into phthisis, with an abscess. 3. Into acute and chronic.

Subjects. 3. Persons subject to this disease are the young, long-necked, tall, narrow chested, and lax.

Causes. 4. The procatarrhic causes are acrid matter, metallic fumes, moist air, tubercles, haemoptoe, suppressions of usual evacuations,

cuations, inordinate passions, gluttony, drinking, indolence, wounds, and dregs of other diseases; infection, and hereditary taint. Obstruction of the glands of the lungs or arteries produce this disease, as well as ulcers.

5. It is divided into two stages, in- *Stages.*
flammatory and suppuratory.

6. It begins with a dry cough, clangorous voice, heat, pain, oppression after motion, spitting of blood, saltish taste of the mouth, loss of appetite, thirst, vomiting, faintness, sense of weight in the lobe affected, pulse quick, soft, and small; sometimes full and hardish. This we call the inflammatory state. *Symptoms.*

7. Soon after the patient expectorates matter white, green, streaked, insipid, and fetid. The body wastes, and seems chilly in hot weather, with night heats, and morning sweats, diarraea, dysentery, lientery, or diabetes; the palms of the hands burn; the tongue becomes covered with little ulcers; after meals the cheeks flush; the nails grow crooked; the hair falls off; the feet swell; the belly shrinks upwards; parts of the air-vessels are thrown up by spitting; all the functions languish; the body grows dry; the eyes sink into their sockets. Laesion of deglutition, drying up of the ulcers, chills, and loss of strength, carry off the sick in the midst of flattering hopes. This we call the suppuratory state. In a Vomica pulmonum all these symptoms appear, excepting spitting of pus.

8. The inflammatory state is thus distinguished from the catarrh. In the former, the cough is dry, a sense of weight is perceived in one of the lobes of the lungs. In the latter, defluxion only.—Putrid remittent fever, expectoration of pus, wasting, night sweats, and

and colliquative looseness, distinguish the suppuratory state from other diseases.

AN EMPYEMA is a collection of pus between the lungs and the pleura. It is distinguishable by the hectic fever, difficulty of breathing, cough, spitting, fluctuation of matter, weight and sense of pain on shifting posture; with other signs of inflammation and suppuration.

A consumption is distinguished from a Vomica of the Liver, by that pathognomonic pain which attends the latter, and which reaches upwards to the shoulder; by tumor and pain in the part affected, nausea, vomiting, and diarrhaea.

A consumption is distinguished from an abscess of the stomach by symptoms peculiar to the latter, viz. Fetid eructations, cough without expectoration, purulent vomiting, faintings, sweats, pain in deglutition, or after; pain of the intestines, occasioned by the passing of pus; of the omentum, or mesentery of the kidneys; desire of lying on the belly; purulent urine, or dysury, &c.

III. OF HECTIC FEVER.

Definition. 1. FEVERS which proceed slowly, debilitate and waste, are called *Hectic*.

2. Hectic fevers are divided into idiopathic and symptomatic. Symptomatic hectics proceed from *Division.* schirrous infarctions, and ulcers of the viscera, particularly the lungs and mesentery. There are hectic fevers which proceed from mere acrimony. This opinion gathers strength from a survey of the remote causes of hectics, viz. Inordinate passions, grief, anger, care,

care, watching, excessive evacuations of all sorts; corrosive medicines; debility of the first passages; past diseases; suppressions of usual evacuations; drunkenness.

3. The symptoms of hectic are the same almost as in consumptions.

Symptoms.

IV. OF HAEMOPTOE.

1. FLORID frothy blood thrown up from the lungs, we call *Haemoptoe*.

Definition.

2. Persons are subject to this from the same dispositions mentioned under the section of consumption.

Subjects.

3. The remote causes are violent orgasms, or expansion of the blood; spastic contractions of the viscera; schirrous obstructions; polypus's in the pulmonary vessels; plethora's after intermissions of usual evacuations; anger; violent exercise; high sauces; spirituous liquors; violent fits of coughing; strainings; hard frost; inelastic air.

Causes.

4. The preceding symptoms are shivering, lassitude, coldness of the extremities, anxiety, difficulty of breathing, heavy undulatory pain about the region of the diaphragm, flatus, and pain of the back. These symptoms are peculiar to this species of haemoptoe.

Symptoms.

V. OF ASTHMA.

1. ASTHMA is a laborious respiration, threatening suffocation.

Definition.

2. It is 1. Periodic, or continual.
2. Moist, or dry. 3. Genuine, or spurious. Of the first we treat only.

Division.

3. It

Subjects. 3. It chiefly attacks fat people, and after the bloom of youth. It is more frequent in summer than in autumn.

Causes. 4. Its remote causes are gross foggy air, thunder, inordinate passions, small-pox, scurvy, intermittents, catarrh, old ulcers cicatrized, suppression of wonted evacuations, repercussions of critical evacuations, gout, erysepilas, oedematous tumors of the feet, wounds of the diaphragm, hereditary taint.

5. Its proximate causes are, 1. Obstructions of the bronchia and air-vessels. 2. Irritation of the respiratory nerves; thence spasmodic contraction of those fibres which correct the cartilaginous rings of the bronchia.

6. The paroxysm manifests itself thus. First, the stomach is distended, and throws up belchings, with a sense of coarctation.

Symptoms. Heat, fever, stupor, head-ach, nausea, and pale urine follow. The lungs feel stiff, the spirits are ruffled, the extremities seem benumbed, the breast feels as it were squeezed between two pressers, the patient breathes with difficulty, and speaks hoarse. During the night every symptom increases. Breathing is slow, nor can it be performed but in an erect posture, nor without the assistance of the scapulae. Worse in bed than in the cold air. Tears flow involuntary, the pulse feels weak, small and intermitting; the heart trembles, the face grows black, with a sense of suffocation. As the straightness remits, a viscid, sweet, saltish phlegm is thrown up, streaked with black filaments. The urine then is coloured, and lets fall a sediment. When the fit is over, the spitting ceases. As the disorder grow inveterate, the hands and feet swell, especially towards night, the countenance acquires a livid

livid cast, the patient falls into dropsy, consumption, inflammation of the lungs, lethargy, palsy, death.

Prognostics.

THUS, having accounted for the causes, seats, symptoms, and effects of pectoral diseases in general, we now proceed to their several prognostics.

1. Dry Coughs generally change into moist. The former are more dangerous than the latter, because of those inflammations, and ^{Coughs.} ruptures of vessels which accompany them. Better that dry coughs should turn moist, than moist into dry ; because tubercles, putrid and hectic fevers generally attend the latter. Moist coughs hinder digestion, and bring on cachexy. To weak lungs, both sorts are bad.

2. Convulsive Coughs are rarely ^{Convulsivus.} dangerous.

3. In consumptions, the following symptoms promise fair. Pus white, even, easily thrown up, little or no fever, respiration free, ^{Consumption.} cough moderate, appetite not impaired, chest wide, belly lax, youth, and the disease yet recent.—If the disease happens to be hereditary, if the cough is severe, if the hectic heat lasts till morning, if sleep refreshes not, if the wasting be great, if there is danger of suffocation, looseness, colliquative sweat, and swelling of the feet, the case is, at best, desperate. Acute phthisis is more dangerous than chronic, originary than symptomatic. The autumn promises little to consumptives.

Hectic fe-
vers.

4. In hectic fevers, if the strength fails, if the hair falls off, with colligative diarrhoea's, night sweats, swelling of the feet, urine oily, and the face hippocratic, the patient has little to hope for.

5. Of all haemorrhages, that of eruption of pure blood from the lungs is the most dangerous. According to the habit, <sup>Haemor-
bages.</sup> age, and vessels ruptured, the danger varies. It is more perilous when it arises from weak vessels, schirrous, or polypus, than when it proceeds from the fluids themselves, or the intermission of usual evacuations, in weak lax habits than in strong, in old than in young, from ruptures of large vessels than from small. From obstructions, women are subject to haemoptoe. In them it is more alarming than dangerous. Emenagogues, about the next time of eruption, bring nature to its own channel, the haemoptoe ceases. If part of the blood stagnates in the aereal vessels, it putrifies, corrupts the sound parts, and brings on consumption. If it happens to be complicated with ulcer, the patient would do well to think of another world.—If it returns often, the blood acquires acrimony from inanition. Hence it is, that (in Monasteries) those devotees who really fast, die all of putrid hectic fevers. The same juices, by constant circulation, naturally acquire putrescency; their breath is offensive; such generally die raving mad. Thus it fares with nurses who fast too long; their milk tastes strong of urine. Hence also it is that the best natured people grow peevish through sickness. This explains that axiom, *Qui fame moriuntur, febre moriuntur.*

Asthmas.

6. In asthmas, the prognostics are more promising in youth than in old age,

age, from evacuations suppressed than from other causes. The more frequent and severe the paroxysms, the worse. An asthma changing into a peripneumony is deadly. Difficulty of breathing may be long borne; orthopnaea strangles old men suddenly. Blackness of the face, and suffocation happen from a stoppage of the blood thro' the lungs. Dangerous are trembling respiration, pulse intermittent or deficient, palsy of the upper extremities, faintings, palpitation, and scarcity of urine. When the breathing comes to be small and slow, when the limbs feel cold, when the pulse changes from slow to quick and weak, matters are at the worst. Thus having accounted for particular prognostics, we next proceed to the several methods of cure.

Cure.

1. THIN, sharp catarrh calls 1. For vaenefection, gentle purging, and mild dia-
phoretics. 2. Acrimony is to be cor- *Thin catarrh.*
rected, thinness inspissated, and the pulmonary
vessels to be relaxed by vegetable expressed oils;
mucilaginous decoctions; pectoral syrups and
balsams. 3. Convulsive spasms are to be quieted
by opiates. 4. The diet ought to be light, bland,
milky. The skin ought to be defended from the
air; rest is first to be indulged, then gentle ex-
ercise.

2. In viscid catarrh, 1. The peccant matter is
to be diverted, by keeping the belly
open, blisters and issues. 2. It is to *Thick ca-*
be attenuated by vomits, blisters, and *tarrh.*
medicines inciding and deterging, viz. soap,
squills, garlick, gum-ammoniac, and vegetable
acids. 3. The lungs are to be strengthened by
fumiga-

fumigations, riding, friction, corroborating diet, and ferruginous waters.

3. In convulsive Coughs, medicines avail but little, till the disease has almost expended its fury. These chiefly conduce, 1. Bleeding. 2. Vomits. 3. Purges. 4. Pectorals. 5. Blisters. 6. Specifics; and, 7. Bitters.

4. In the inflammatory state of consumptions, 1. Small bleedings seasonably repeated conduce.

2. Blisters ought frequently to be applied. 3. Thin sharp humours are to be inviscated by oily incrassating medicines. 4. Vomits, provided the disease takes its rise from thin catarrh. 5. Medicines and diet are specifically to be directed to the causes; haemorrhage, scurvy, scrophula, asthma, evacuations, &c.—Crude tubercles are to be attempted by the most gentle deobstruents, and with the greatest caution.

4. The second, or suppuratory state, may be attempted, 1. By astringents, increasing and agglutinate. 2. Pus is to be drawn off by those ways which nature affects.

3. The effects of pus are to be prevented by antiseptics, incrassants, and acids. 4. The body is to be refreshed with light nourishing diet, air, sleep, avoiding venery, and passions of the mind.—The preservative cure depends on little bleedings, diet, exercise, and avoiding night air.

5. Heptics admit of no cure, unless they are timeously attacked. The acrimony of the blood

is, 1. To be corrected by medicines demulcent and inviscating, such as almond emulsions, vegetable mucilaginous decoctions, barley, marsh-mallows, colts-foot, chicken broth, &c. 2. Asses milk, or breast milk, goat-whey,

whey, &c. 3. Gentle astringents, conserve of roses, tincture of roses, elixir vitriol, bark, ferruginous waters, &c. 4. Riding, and constant travelling. 5. Cleansing the first passages, by gentle pukes, and rhubarb. 6. Paying attention, always to original causes.

6. In Haemoptoe, 1. The blood is to be diverted from the lungs. 2. Its orgasm is to be tempered. 3. Spasms are to be allayed; and, 4. Ruptured vessels are to be soldered. — 1. The blood is to be diverted by vaenesection, gentle purging, glysters, and ligatures. 2. Its orgasm is to be tempered by water and nitre, acids mineral and vegetable, and opiates. 3. Spasms are to be allayed by opiates. 4. The vessels are to be consolidated by medicines oily, incrassating, and agglutinant diet, tranquility, abstinence of all sorts.

7. In moist asthmas, the intention is to attenuate, and evacuate viscid matter, and to prevent its regeneration. Attenuation is performed by medicines, attenuating and diluting liquors. Evacuation by pukes. Generation of new matter, by gentle purges and diuretics, fontanells, blisters, and the bark.

Moist asthmas.

8. In convulsive asthmas, the business is to quiet the organs of the spirits. This is accomplished, 1. By diminishing the stricture by glysters, and fomentation applied to the breast. 2. By diverting the humours to other places, by friction and warm pediluvia. 3. By allaying the spasm with opiates and anti-spasmodics.—In the plethoric, bleeding gives immediate relief. In flatulencies, carminative glysters. After the paroxysm, the bark bids fair for preventing irritability. In both kinds, erect pos-

ture, slender diet, and air serene conduce. If the disorder proceeds from suppression of usual evacuations, it is to be attempted by diaphoretics and restoration of such evacuations.

FROM the preceding deduction, we naturally draw the following practical reflections.

Evacuations indicated. 1. IN constitutions naturally good, when fever, sickness, cough, and wasting, give early warning when the disorder happens to be endemic, and the habit not much impaired, common evacuations generally succeed.

Incysted tumours. 2. ULCERS from incysted tumours yield to common methods, provided the disorder proceeds from external injuries, and the constitution be sound.

Pus, confined within its cystis, affects the lungs no otherwise than by pressure. When the cystis comes once to be expectorated, the disease is cured.

From page 99 to 105 inclusive, Gilchrist (in his *Use of Sea Voyages in Medicine*) gives histories of cures from incysted tumours, with the help of hardly any one medicine ; nay, he hardly allows such to be called consumptions.

Glandular obstructions. 3. CONSUMPTIONS from glandular obstructions are very frequent, and very obstinate. Between such, and scrophulas, there seems to be great analogy. Scrophulas prevail often without visible tumour. The seat of the distemper lies often in the mesentery and lungs, which are covered with an infinitude of glands. Such obstructions frequently end in hectic and pulmonary consumption. Scurvy, vapours, and scrophula often have the same common cause ; therefore it is that they are often common to the same patient, and change

change so often into one another. Sickly tender habits have often been relieved by scorbutic eruptions. Eruption imprudently repelled has brought on tubercles, glandular swellings, topical inflammations, languor, and vapours. Some scrophulas are mild, and easily admit of resolution, or suppuration. Others are intractable. So, in some consumptions, we observe mild suppurations. In true glandular consumptions, there are not wanting instances of cures. But, if the habit degenerates, if new causes concur, other glands come to be affected, those which have been healed turn callous, the disease comes to be fatal.

4. WHEN obstructions resolve not, when the lungs really come to be ulcerated, cures are very rare. By malignity of ulcers added to necessary motion of expiration and *Suppuration*, spiration, consolidation is prevented. In pectoral diseases, various and perplexed are the contra-indications. Like fruits on the same tree, some are green, some coloured, some mellow. Just so it fares with the pulmonary glands; some are crude, others inflamed, others suppurated, others broken. In fevers complicated of the inflammatory, hectic, and putrid, what hopes can we administer? In coughs dependent on erosion, on catarrh, opiates, doubtless, have their use. By retaining acrid pus, they add to infarction; they debilitate, pall the appetite, and bind the belly; they are, at best, but temporary reliefs. Fever indicates the bark. Bark adds to obstruction; and so may we say of pectorals in general.

5. THERE is hardly a disease in which common practice is more absurd than in this of which we treat. Coughs,

*Pectorals,
their opera-
tion.*

catarrhs, heccics, consumptions, asthmas and haemoptoies differ from one another, and therefore require different cures. Sharp catarrhs indicate diaphoretics, thick attenuants. Scorbutic consumptions yield to antiscorbutics; venereal to mercurials. Medicines certainly have their use; by restoring faltering nature, they often procure a truce; and, at length, a cure. But, from a comparative view of the delicate structure of the lungs, and the qualities of medicines promiscuously employed, we may venture to say, that consumptives are too often hurried to their long homes. Cloying linetus's pall the appetite; astringents cork up, choak, and increase the fever. When we endeavour to cure consumptions by remedies which respect the habit, we satisfy one indication only. Surgeons rely not altogether on local applications. Ulcers are the same, external or internal. To correct the vice of the fluids, to consolidate the ruptured vessels, are equally the intentions of the rational practitioner. By the common method of practice, one would think that practitioners had discovered a shorter passage to the lungs than by the round of circulation.

6. IN cases where art has exhausted its skill, where nostrums have proved of none effect, where the mass of blood has been fused into ichorous corroding serum, where this same serum has run off in colliquative discharges, where these discharges have been increased by consuming hectic, where the tenement of the lungs has been broken, where the bronchia as well as cavity of the thorax have been filled with pus, where the body has not only been emaciated, but could not be nourished, Bristol hot-well waters have performed wonders. The only collection of cures performed

formed by those waters, is that very short treatise by Dr. John Underhill, of Bristol, printed in the year 1703. By the author's facetious stile, it bears the marks of genuine simplicity. From this simple fountain, added to my own observations, I hope to be able to produce proofs sufficient of my text. To facts I appeal.

“ The Hot-well water mixeth (as he says) *per minima*, with wine, and other potables, so naturally suited to all stomachs, and of such agreeable warmth, that it never regurgitates, though common water of the same heat is an emetic, and so wonderfully fortifies the ventricle, that it never fails to excite an *eager appetite*. This is so well known, that instances were endless and coincident. It is of true merit in all *Cachocymy, Cholic, Bilious Vomiting, Cardialgias, Dysenteries, and Fluxes* of all kinds, *Fevers, and all hectic Cases, all lavish Sweatings, Rheumatic Pains, Herpetes, Pustules, Itch, Scorbutic, all sorts of Ulcers inward or outward, Asthmas, King's Evil, Dysuries, Diabetes, Kidney-gravel, Bladder, and other excoriations.* It extinguishes all *thirst*. It is more *binding* than *laxative*: To diffuse the curative uses of this helpful water, I have carefully collected the following histories, attested either by the persons themselves, or other credible eye-witnesses, to obviate all suspicion of falsehood, and frivolous objection to the prejudice of the public against plain matters of fact. *Res ipsa loquitur.*”

1. “ The Reverend Dr. Hammond, of *Christ Church, Oxon*, about four years since, spared neither care nor cost for the recovery of *Christopher Pyman*, his then servitor, and now of the same college.

“ After the Doctor had left him past hopes of recovery, with his funeral directions, a dismal spectacle, wasted to the last degree, in a consumption, at the prime of life, forsaken by his physicians, and left to the merciless hand of death by his friends, was perfectly cured by drinking the Hot-well water, and now remains a living healthful testimony of this truth.”

2. “ William Darvise, of *West-street, Lawford's Gate, Bristol*, aged fifty-three, at the last extremity consumptive, a frightful skeleton, continually coughing, straining, and spitting day and night, appetite gone, sleep with his physicians vanished, and his friends hourly expecting his death; by drinking the Hot-well water this present summer, is, to astonishment, restored to appetite and sleep, hale and active, without cough, or any remaining symptom. This, in gratitude, he desires to be published, for the sake of others in such tabid languishing circumstances.

“ *William Darvise.*”

3. “ Mrs. Watkins, of Bristol College-green, certifies, That Capt. Richard Clark, of Horse-path, aged forty-six, lodged at her house for about seven weeks, in the year 1701, in which time the Hot-well water checked his melting sweats, which had been long lavish, and did take off his insatiable thirst. I am since assured by his niece that he enjoys perfect health.”

“ It seems useless (continues our author) to insert parallel, or lesser cures, which lie by, for room-sake, to manifest the effective virtues of *Hot-well water* in the most miserable phthisic cases; for it is, *instar omnium*, the last and only known subterfuge in *Heclics* and *dyscrasy* of

“ of humours. It is a true and faithful febri-
“ fuge at all essays ”

1. By easy journies, Miss Lee of *Birmingham*, was conveyed to the *Wells*. To the dregs of the measles she owed her consumption. By profuse sweats, and colliquative ^{Author's Cases.} discharges of all sorts, she was reduced to skin and bone. Every morning the chamber-maid emptied a basin, almost half full of matter, of an intolerable stench.

She was so weak that she could not walk up to the pump. She drank the water in her chair for the first six weeks, without the least visible amendment. After this, it began to have a sensible effect. It *threw* out large boils on her back. At the end of three months her blood vessels seemed to be filled with fresh juices. She eat heartily, walked firmly, and rode on the *Downs*. The only remaining symptom was a dry teasing cough, which (as I have often observed) seemed now to be exasperated by the continuance of the waters.

I advised her to go home, to drink spring-water acidulated with *Elixir Vitriol Acid*, and buttermilk, with riding. After six years she now continues well.”

2. Lord Stavordale, of a delicate frame and fair complexion, aged about ten or eleven, came down to the *Wells*. By the advice of the most eminent, he had gone through the pharmacopœia, he was escorted by an eminent apothecary, armed with baskets of antidotes for every symptom. By cough, hectic, flying pains, and sweating, he was so reduced, that he could hardly bear the motion of a post-chaise; he had thrown up pus. He was, at first, carried in arms, to drink the water at the pump. In the space of six

weeks his symptoms vanished, he grew plump and active, galloped his little horse up and down, and continues well."

3. Master Townley, of *Lancashire*, of the same age and complexion, came hither emaciated by a hectic fever, attended with a cough. By the waters acidulated with *Elixir Vitriol* alone, he went away recovered.

4. Mr. Redpath of London, Merchant, after a pleuritic fever, laboured under a cough, hectic, sweatings, and rheumatic pains, which reduced him very low. He drank the waters for two months, summer, 1761, and went away well; he returned last summer, and confirmed his cure.

5. Mr. Evetts, of Birmingham, Merchant, came to the Wells, labouring under cough, hectic fever, cold night sweats, loss of appetite, and wasting. By drinking the waters but fourteen days, he returned almost as well as ever. He relapsed three times, found relief, but is since dead.

6. Archibald Menzies, Esq. of *Perthshire*, a young gentleman of an athletic constitution, after some days and nights of hard drinking, and sleeping in wet cloaths, was taken with pleuritic pains, which yielded to repeated bleedings, blisters, &c. Now and then he felt a sensible weight in one of the lobes of the lungs, which as often was relieved by expectoration of fetid matter, striated with blood. After an eruption of one of these vomica's, observing a clergyman carried down the stream of a rapid river, he jumped in, and brought him out, in a cold frosty day. Anxious about restoring the unfortunate, he neglected to shift his cloaths. His symptoms returned with violence, and yielded to the same regimen.

Improperly treated with steel medicines, his symptoms returned with violence, these were relieved

lieved as before. By blisters and riding, his sweats abated last summer. But, his pleuritic pain continued to return every fortnight, or week, unless prevented by copious bleeding. He was only troubled with the cough when nature wanted to ease the lungs of congested pus. As soon as that was thrown up, he was easy till the next attack.

By the joint advice of the Professors Rutherford and Whytt, he rode to Bristol, a journey of six hundred miles. He found himself better on the road. Drowsiness and head-ach, the usual harbingers of his pleuritic paroxysm, seemed to indicate bleeding in *London*. He was also bled at *Bath*. His blood was always inflamed. He arrived at the *Hot Wells* early in summer, 1761; he drank the waters for three months, during which time he felt no indications for bleeding, a reprieve unknown for eighteen months. By way of prevention, I advised him however to be bled. His blood was pure as a lamb's, I repented the prescription. He left the wells strong, active, and hardy. Dreading the effects of northern winter air, I advised him to go to *Italy* by sea, where he staid two years, rather for pleasure; he now enjoys perfect health.

7. Master Dampier, aged about fourteen, came to the *Wells* emaciated, so that he was carried in arms to and from the pump. In one day he threw up matter to the quantity of a quart. To the waters, little assisted by medicine, he owes the complete recovery of his pristine vigour, spirits, and activity.

8. Miss Serjant, aged twelve, came to the *Wells* in still a more unpromising condition. By the prognostic of a physician well acquainted with consumptions, she was pronounced incurable. By the use of the waters, little assisted by medicine,

she sleeps nine hours on a stretch, eats heartily, walks up and down to the Wells, and gallops on the *Downs*.

9. Master Holiday, aged fourteen, at *Eton School*, was taken ill of a fever, which intermit-
ted at last, and terminated in a cough, difficulty of breathing, loss of appetite, looseness, sweating and hectic. By the use of the waters, *Asses-milk*, and riding, he recovered in the space of one month.

10. Corporal Shaw, aged twenty-three, of a consumptive family, came to the Wells, with a violent cough, spitting, sweating, languor, &c. By the help of one blister and the waters, he recovered so perfectly, in the space of three weeks, that he proceeded with his regiment to *Belleisle*.

11. William Sprole, Esq. caught a violent cold, for which he took variety of medicines during the winter. By the help of a blister his complaints seemed to vanish, till in the beginning of summer, he was taken with the *Influenza del aere*, at that time epidemic. He came to the *Hot Wells*, with a cough and spitting almost constant, want of appetite, languor, sweating, and hectic. By *Bristol Water*, *Asses-milk*, and *Riding*, he found a cure.

N. B. The last five cures happened in summer, 1762.

C H A P. XVI.

OF DISEASES OF THE URINARY PASSAGES.

I. OF THE DIABETES.

1. **A**RETAEUS was the first who gave any tolerable description of this disease; he calls it “A flux of humours, a colliquation of blood, and a continual effusion by the kidneys and bladder.” More properly it may be defined, an unnatural effusion of urine, most commonly sweet, attended with thirst. *Definition.*

2. Its causes are feverish disorders cured by excessive evacuations; bite of the serpent *Situla*; laxity of the renal glands; acrid serum; immoderate use of small liquors; *Causes.* excess of venery; stoppage of other secretions, &c.—Willis mentions one from indulgence in Rhenish wine, Lister one from Knaresborough water, and another from Bals. Capivi. The mass of blood is compounded of various globules. When particular globules take the road which nature affects not, there arise diseases said to proceed *ab errore loci*. If the emulgent arteries, e. g. come to be vitiated, they receive and convey globules designed for nutrition to the kidneys. The renal vessels and glands become more and more disposed to this unnatural discharge.

3. The symptoms are, hunger and thirst insatiable; parched mouth; frothy spit-
tle; varicous swellings of the abdominal *Symptoms.* veins, with a sense of constriction; heat; anxiety; restlessness; hectic; swelling of the loins,

loins, testicles, and feet; constant inclination to void urine limpid and sweetish; wasting and death.—*The symptoms may easily be accounted for. The liquor discharged differs from urine in taste, colour, and smell. It is really and truly an efflux of chyle, little altered by circulation; hence taste, wasting, &c. Urine is an excrementitious liquor.* Dr. Keir made an experiment which determines the point. “He put a portion of diabetic urine into a vessel over a gentle fire. Before one half had evaporated, it deposited a considerable sediment. The whole mass was, at last, coagulated.—The same quantity of healthy urine, treated in the same manner, evaporated almost entirely, leaving only a little fetid sediment behind.”

A recent Diabetes easily yields to common helps, inveterate rarely. The curative indications are, 1 To strengthen the organs of

Cure. digestion and the renal vessels. 2. To remove those obstructions which cause a diminution of other secretions. The first intention may be obtained from strengtheners and astringents; incrasiliants and restoratives. The second from whatever restores perspiration. As it requires singular sagacity to distinguish between different and opposite causes, our wonder may cease, when we hear of diabetics swallowing baskets of drugs to little or no purpose. Under the direction of the most sagacious, there are but few diabetics who recover. The disorder has generally taken deep root before the patient submits. There are but few patients who do justice to their physicians or to themselves. If ever there was a disorder adapted to mineral waters, it may be said to be this. In that chapter which treats of general virtues,

virtues, the reader will find the specific qualities of the several ingredients rationally accounted for. Theoretical notions gather strength from the experience of Baccius, the prince of mineral water writers. In treating of disorders of the urinary passages, he has blended them so together, that it is not so easy to separate his diabetic practice from the rest. In his book *De Thermis*, pag. 115, he expresses himself thus, “Renum vero effectus, viscerum, et maxime hepatis, cui videntur ministerio subesse, rationem in balneis consequuntur, ac vesica renum. Vexantur autem renes callidae intemperiei affectu ut plurimum, tum quia renum ipsorum substantia laxa pinguitudine admodum inflammabilis, participat.” Hence, from the slightest cause, they are apt to heat and turn crude obstructions into stony concretions; hence also white fluxes, *Diabetes*, inflammations, ulcers, and diseases incurable. In all the affections of the urinary passages, every water conduces that has the property of absterging these parts, and so removing the cause. *Potentiae omnes aquae quae proprietatem habent per urinarios meatus abstergendi, et quae immediate veluti causam tollunt.* Nor are they less effectual, for being of that kind, which divert the fabulous matter by stool, *quae communis est praxis in hac alma urbe Roma.*

He directs his first intention to that hot temperament which constitutes the basis of the disease. For this purpose he proposes purging waters, *subtiles et mediocriter calidae essentiae aperientes, digerentes, vel non indecores, si ad robur conferendum ferro quadatumus participant.* Such, in a word, as deterge and comfort at the same time.

These, and all such waters cure heat of urine, strangury, and dysury, nocturnal polutions, involuntary

voluntary seminal flux, bed-pissing, the *Diabetic Flux*, with its concomitant, thirst inextinguishable. *Ex eadem involuntariam siccant seminis effluentiam, nocturnas pollutiones, improvisam per somnum emissionem, diabeticum fluxum, sitimque exinde natam inextinguibilem.*

Galen (in his book *De Ren. affectuum dignotione, ac medicatione*) after speaking of unguents and synapisms for strengthening the reins, adds, *Aquarum etiam sponte manantium usus, si nihil prohibeat. Maxime vero laudantur quae in potibus medicatis expurgando, pro ferri qualicunque impressione, vim quoque insignem obtinent roborandi, ceneae, ferreae, falsae. Extrinsecus balnea etiam ex ferro, plumbo, vel aliis mineralibus roborantibus.*

Of the power of *Bristol Water*, Doctor Harris (in his master-piece, *De Morbis Acutis Infantum*) speaks thus. “ De aquis mineralibus *Bristoliensibus*, quantum in hoc morbo prosint, et quantum existimationem merito sint assecutae, jam vulgo et idiotis innotescit. Sed et aquae illae celerrimae in pluribus aliis languoribus, ac debilitatibus praeterquam renum, famam et existimationem optime merentur, valetudinem infirmam insigniter roborant, et sitim in *Diabeto* exortam, prae aliis omnibus, celeberrime extinguunt.”

Of the power of *Bath Water* (in disorders of the urinary passages) I have given proofs unquestionable. Of Bristol Waters we now proceed to treat. “ The Hot-well-water (says Underhill) is the true medela in that fatal dejection and dispiriting by urine, the *Diabetes*, as appears by the autography of the wells.”

1. “ Mr. William Gagg, of *Bri-*
Cas. “ *tol, Castle Green*, a very fat man, at
“ his prime, was seized with so violent a *Di-*
“ *abet*,

“beth, that he made at least three gallons of very
“sweet urine, with a large quantity of oil swim-
“ming a-top; he could not sleep for either drink-
“ing or pissing, when, in six days (appetite
“gone) so run off his fat and flesh, that he was
“reduced to helpless skin and bones, deserted by
“his physicians (not sparing money) and given
“over by his friends (several of his neighbours
“then dying of the same disease, not knowing
“the waters use) resolutely cast himself on God’s
“mercy, and the Hot-well-water (though igno-
“rant of its use) imploring his friends to support
“him to the Hot-well, as their last cast of kind-
“ness; which, with difficulty, they performed;
“he fainting away every step, and even in drink-
“ing the water. Yet, to God’s glory, and their
“astonishment, his strength was so sensibly re-
“cruited with every glass, that he made them
“loosen him, pretending to walk, which his
“friends despaired of. He walked back, never-
“theless, aided, now and then, by a sip of his
“holy-water-bottle, which, on the first trial,
“vanquished his insatiable thirst, and stopped his
“pissing, and so restored his depraved appetite,
“that, at his return home, he eat a large savou-
“ry meal; and, by drinking the water for some
“time, attained his perfect state of health, living
“many years after.

“Signed, *Mary Gagg, his widow.*”

2. “Mr. William Molyneux, of Warrington,
“certifies, that he was excessive thirsty, and
“made such lavish quantity of sweet urine, of
“diverse colours, a thick oil swimming a-top,
“that, in three weeks time, he was reduced to
“such weakness (his Physicians directions ine-
“fected) that it was with very great difficulty
“he

“ he got to Bristol, in September, 1695, and that
 “ the very first day, by drinking, his thirst a-
 “ bated, urine checked, and became brackish,
 “ he recovered his appetite that before nauseated
 “ all flesh meat, and that, in eight days, by
 “ God’s mercy, he was perfectly cured, follow-
 “ ing the directions only of Mr. Gagg, a Baker,
 “ of this city, who, seven years before had been
 “ cured of the same disease, by drinking the
 “ same water.

“ *William Molyneux.*”

3. “ Among the *Hot Well Votiva*, we find
 “ Mr. Rogers of *Birmingham* (all medicines fail-
 “ ing) signing his perfect cure at the age of
 “ threescore.

“ *Thomas Rogers.*”

4. “ Mr. Ralph Millard, Inn-keeper, at the
 “ *Swan*, *Coleman-street, London*, aged fifty, in
 “ the spring, 1699, after great medick expence,
 “ and given over by his physicians, in a *Dia-
 betes*, was directed to the Hot Wells, to which
 “ place he got with great difficulty; not being
 “ able to scramble to his bed without help. By
 “ drinking the waters three weeks, he was so
 “ invigorated, that Mr. Eaglestone of *College-
 green, Bristol*, saw him lift a barrel of ale
 “ up several steps, which three other men failed
 “ to perform. In three weeks more, he re-
 “ turned to London, riding the hundred miles in
 “ two days.

“ *Joseph Eaglestone.*”

5. “ Mr. Cale, of *Bristol, College-green*, aged
 “ about forty, two years last past, was afflicted
 “ with a violent *Diabetes*, which the Hot Well
 “ water

“ water immediately stopped, and he hath remained well ever since.

“ *Gilbert Cale.*”

6. “ Elizabeth Gettes, who keeps the Boar Inn, at Bristol, certifies, that Mr. James Darling, of Oxon, aged about fifty, was perfectly cured last summer of a *Diabeth* in two months, by drinking the Hot-well-water, then lodging at her house, and now remains in perfect health.

“ *Elizabeth Gettes.*”

7. John Blandy, of *Inglewood-house*, Esq. aged sixty-three, in less than six weeks, this summer, was perfectly cured of a *Diabeth* by drinking the water, then lodging at my house.

“ *Elizabeth Browne.*”

8. “ William Beckford, of *London*, her Majesty’s slopster, aged about forty, lodging at my house, was cured in thirteen weeks of great weakness, depraved appetite, decayed strength, and Diabetes, after other means had failed.

“ *Anne Green.*”

His list of Diabetics concludes thus.

9. “ There is also a certificate of Capt. Robert Ham’s cure, at the age of seventy-seven, by constant drinking for eight months.”—He adds, “ Instances seem needless, the use of the water being now so effectually known for a most sovereign remedy, even at the *acme*, and last extremity of a *Diabetes.*”

To Underhill's catalogue I beg leave to add the following, partly from undoubted authority, partly from my own knowledge.

10. John Strachan, Esq. of Dorsetshire, came to the Wells twelve years ago, labouring under a Diabetes. Finding but two chamber-pots under his bed, he ordered more. The chamber-maid brought up half a dozen; at the sight of which he said, These, my girl, are no more than six thimbles; did not modesty forbid, I could fill them all before your face: bring me a small washing-tub. She brought him one that held two pails; this he filled every night. Before he rode out, he used to fill a common chamber-pot two or three times.

His appetite was ravenous; of bread, he used to eat sixteen French penny rolls a day. When he returned from airing, he used to eat up a whole fowl, and dine as if he had not eaten a morsel.

For the first five weeks he drank two, three, four gallons a day. Reproved, he used to answer, I came hither to be cured, and am determined either to be killed or cured. About this time he began to mend, and was called away. Two or three months after he returned, drank the waters as before; and, in five weeks more, went away in perfect health, eating, drinking, and pissing no more than any other man. *N. B.* He lodged at Mr. *Bishop's*, in the Well-house.

11. Mrs. Sugden, aged about fifty, (from cold and watching) fell into a Diabetes. After drinking the waters but a fortnight, she mended so much, that she could sit three hours without making water. By five weeks drinking she recovered.

12. Mr. Biss, of Tower-hill, by frequenting this Well, was cured of a Diabetes."

13. Dr. Maddox, late Bishop of Worcester, came to the Wells season after season, for a Diabetes, and always found relief.

14. Nine or ten years ago, Mr. Sewen, from Swansea, in *Wales*, aged about fifty, was brought to the Rock-house in a horse-litter, so weak that he could not sit up in bed, almost a skeleton. The water was carried to him for the first three weeks; he made thrice as much water as he drank. In about six weeks time he walked over to the pump, where he drank the waters for about four months; at the end of which he left the Wells in perfect health.

15. Mrs. Piper, of Broughton-street, London, came hither once or twice, almost dead, of a Diabetes, and is now recovered.

16. About eight years ago, a farmer from Worcestershire got so well in three weeks, as to continue so ever since.

17. J. Browne, a butcher of *Norwich*, was afflicted with a *Diabetes* for seven years, he had tried variety of prescriptions. After he had drank the Bristol waters fourteen days only, playing at *Bishop's* billiard-table one day, he found himself perspire. He went to bed, drank half a pint of Port-wine hot, and sweated for the first time in seven years. After this, he continued to sweat on using exercise. After a stay of three months, he went home, and drank the waters there during the winter. He returned in the summer, tarried four months, and went off perfectly recovered, and continues well, notwithstanding hard drinking.

18. Mr. Robertson, near *Cork*, came to the *Hot Wells* last summer, 1761. His symptoms were

were thirst inextinguishable, ravenous appetite, parchedness of the mouth and throat, heat of the stomach and bowels, varicose swellings of the abdomen, with a sense of constriction, as by a cord, anxiety, restlessness, wasting, with a constant desire of making water, which tasted sweetish. He received great benefit, but never was completely cured, owing, in a great measure, to obstinacy, and irregularity.

19. James Gladhill, of Yorkshire, came to the Hot Wells, summer, 1761, in a confirmed Diabetes, and was cured in the space of two months.

20. Winter, 1762, an old farmer, came to the Wells in a Diabetes, and went away so much benefited, that he declared he would return every year until he was cured.

21. Mrs. Fleming, of *Bath*, at an advanced age, laboured under great thirst, parched tongue, fever, and flux of urine, so that her strength was greatly impaired, and her flesh much wasted. Under these circumstances, I persuaded her to go to *Bristol*, where (by drinking the water but one fortnight) her tongue became moist, her urine lost its sweet taste, and was reduced almost to its natural quantity. Contrary to my advice, she left the salutary spring. Her symptoms returned. Three months after she had again recourse to the waters, staid one month, and was almost completely cured. Contrary to my advice, she returned before her cure could be confirmed. Next winter every bad symptom returned. As I could not persuade her to return to *Bristol*, I made a trial of the *Bath* waters, which restored her surprisingly.

II. OF GRAVEL AND STONE.

1. PAIN of the kidnies, ureters, and bladder, from impacted matter, is called *Gravel* or *Stone*. *Definition.*

2. The causes are luxurious as well as indigestible food; indolence; old age; rheumatism; gout; tartareous wines; *Cause.* hereditary taint, &c.

3. The symptoms of stone in the kidnies are, intense or heavy pain of the loins; heat, nausea; vomiting; costiveness; exacerbation of these symptoms after meals; sandy, bloody, and sometimes purulent matter; suppression of urine; coma; inflammation; ulceration, and consumption. The left kidney suffers oftener than the right. *Symptoms of the stone in the kidnies.*

When the stone falls down into the ureters, the pain increases; the leg feels benumbed; the testicles are drawn backwards; and the urine is, in part suppressed. *Stone in the ureters.*

The stone of the bladder is attended with pain, difficulty, and continual desire of making water; tension and pain of the colon; titillation of the glans penis; tenesmus; looseness; slimy water; bloody water after riding, with increase of pain in the bladder, ureter, and nut of the yard. *Stone in the bladder.*

4. The stone of the kidnies is distinguished from the lumbago, by vomiting; and sandy urine; from the cholic by the pain being higher, with a sense of rumbling backwards; from hysterics, because this is increased by glysters. *Diagnosics.*

5. In

5. In the stone of the kidnies, there is great danger, by reason of inflammation, ulceration, *Prognostics.* and suppression of urine, its concomitants. It is easier dissolved in adults than in children. If the kidnies are ulcerated, the case is desperate. Suppression of urine, coldness of the extremities and convulsions, presage death. The stone of the bladder may be extracted, that of the kidnies rarely.

6. There is one cure of the fit, another out of the fit. The fit is allayed by subduing the inflammation, and spasm. 1. By bleeding. 2. Glysters. 3. Emollient decoctions. 4. Tepid baths. 5. Opiates. 6. Rest.

Out of the fit, this disease is to be attacked, 1. By Lithontriptics, rest, and keeping the belly rather soluble. 2. Diet.

Gravel yields to waters ferruginous, diuretic, and alkaline; such as the *Seltzer*.—In bloody urine, proceeding from laxity, debility of the vessels, or fusion of the humours, Baccius (from experience) strongly recommends the waters of *Grotta*, *Porretanae*, *Albulae*, &c. *Quae et arenulas, calculumque, tam e vesica quam e renibus conterere ac protrudere pollicentur, et urinas provocare.* On the subject of gravel and stone, he quotes that saying of Leonellus, a noble physician, founded on experience, *Qui aquis Thermalibus non curantur, nunquam curantur.* Mineral waters he recommends for many purposes. From the first passages, they extrude superfluous humours; cleanse the urinary passages, even to the bladder; and, if they break not the stone, carry off the sandy particles, which add to its weight. They strengthen the bowels, and thus remove their aptitude to produce calculous concretions; *Sola aqua Anticoli Romae assidue epota habetur*

habetur amuletum quoddam ac praeservativum. From Aetius he quotes a flagrant example of the particular prerogative of water, which not only proves its abstersory power, but its moving, Lib. ii. cap. v. *Ad extrudendum impoetum in vasibus urinariis, vel in renibus lapillum frigidam aquam frequenter & acervatim aegro bibendam jussi, unde, corroboratis renibus, occlusis in illis lapis expulsus est.* What seems surprising, indeed, he observes that waters naturally petrescent posseſſ a dissolving quality, internally administered. *Nam, in omni fere medicinae usu, satis quisque debet contentus esse experientia.*

Waters petrescent dissolve.

Unius rei non est eadem dispositio intra ex extra, adhibitae. Aqua haec super terram, lapidem gignit; exhibita detergit extenuatque evidenter lapidem, et dicit arenulas. Tales effectus contrarios manifeste videmus in Albulis. The waters of the river *Anio*, wherever they touch, turn earth, wood, and bark into stone; its streams are mixed with the turbid *Tyber*, and drank almost all the year. It is, nevertheless well known, that the people of *Rome* rarely feel the stone or gravel; *rariſſimi tamen lapidum vitia sentiunt, nec bareſſulas.* Page 116, he mentions many waters called *Petrae*, or petrescent, which were daily and successfully administered in disorders of the urinary passages, *in hisce affectibus, antiquissimae laudis. Acidae subinde aquae, quarum in renibus, vesicaque, & meatibus urinariis expurgandis prima est praerogativa, qualis Anticoli in Campania, acidula in Bergamensi, aliaeque in Germania, quae omnibus in privatibus potibus bibuntur.*

Hoffman places the cause of gravelish complaints in laxity of the urinary passages. *Toni renalis nimia resolutio morborum qui renes occupant potissima causa, et origo est.*

From laxity.

Qua

Qua de causa temperata astringentia, et roborantia, in calculo tam praefervando, quam curando palmam ceteris arripiunt. — If the testimonies of Aetius, Baccius, and Hoffman are to be depended on, alleviations and cures may be expected from Bath and Bristol waters. Of the former we have given proofs unquestionable, proceed we now to the latter.

Where there is a stone actually formed, Bristol waters allay heat, dilute acrimony, and prevent future accretion. In actual fits of stone and gravel, these are not the remedies. In the intervals, Bristol water, balsamics and other medicines do much good. In gravelish complaints they often cure.

Underhill (page 38) speaks thus. "The *Stone* seems to be produced from the salso-terrene part of the blood, by too hot a ferment boiled into hardness, as brick-makers form their clay. Though the hot-well may not be the true saxifrage water, it certainly washes the gravel out of the kidneys, and other aqueducts; and, by checking inflammation, prevents its future increase; an excellent preventative, doubtless, of those racking hereditary diseases, *Stone* and *Gout*.

1. " Mr. Eaglestone, of Bristol, aged twenty-one, was afflicted with a most restless pain in his back, and difficulty of making urine, voiding sometimes sand; whence he concluded it to be the stone, his father being tortured by it many years. By drinking two quarts of Hot Well water, fasting, at home every morning, he was cured. Gravel came off in quantity, his appetite increased, his sleep was restored, his retentive faculties were fortified, his thirst abated

“ bated. He was so completely cured, that he
“ has continued now twenty years free from pa-
“ ternal disease, and every symptom of urinary
“ disorder.”

2. “ Mr. Blanchard, of *Dolphin-Lane, Bristol*,
“ certifies, that his son, aged six, had a total
“ stoppage of urine for three days and nights,
“ almost racked to death. His physicians told
“ him there was no cure but cutting. By drink-
“ ing the Hot-well water for half a year he was
“ perfectly recovered, and remains in good health,
“ now fourteen years old.

“ *Giles Blanchard.*”

3. “ Mrs. Jochem, of *Bristol-key*, aged about
“ thirty, languishing under insatiable thirst, loss
“ of appetite, and pissing of blood, tired out
“ with ineffectual prescriptions, applied to me
“ in June. She drank the Hot-well water,
“ mornings and evenings. Her thirst abated,
“ her appetite was restored, her *mictus cruentus*
“ was checked, she is now breeding, as she her-
“ self certifies.

“ *Bridget Jochem.*”

To Underhill's let us add the two following cases, which fell under my own observation.

4. Mr. Martin, Purser of a ship of war, was afflicted with a diarhaea for six years, for which he had undergone variety of regimens. He was also subject to gravellish complaints, voiding great quantities of fabulous matter. By drinking this water two months only, he was completely cured of both ailments, without the help of one medicine.

5. Mr. Fitch, a young gentleman of Dorsetshire, subject to gravellish complaints, forcing a

resty horse over a bridge four years ago, sprained his back. Hence racking pain, bloody urine, and vomiting, without sleep for three weeks. He was bled thrice, and was otherwise judiciously treated by Dr. Cumming of Dorchester, who succeeded so far as to check the vomiting; the bloody urine remained, with sickness, languor, pain, &c. He set out for Bristol, and was three days in performing a journey of sixty miles. The bloody urine ceased the first week; he drank the water last summer, and has now recovered flesh, strength, and complexion, with the relict only of a dull pain about the region of the loins, which seems rather to be gravellish. For this he drank the water again, and was cured.

III. OF BLOODY URINE.

UNDER the section of Haemoptoe, I have treated of the general causes, symptoms, diagnostics, prognostics, and cure of bleedings. When blood thus passes off together with the urine, it comes away without pain, the patient commonly continues in health, unless the evacuation continues too long, or in too great quantity.

For this disorder, Bristol waters are constantly frequented, and with success.

IV. OF IMMODERATE MONTHLY DISCHARGES.

THE remote causes are, intemperance, violent exercise, passion, suppression of other *causes.* secretions, disorders of the uterus, &c. The proximate are rarefaction, acrimony, and thinness of the blood, with debility of the vessels.

In blood too much rarified, the indication is (according to Home, in his *Principia Medicinae*)

“ Condensare et demulcere medicamentis coagulantibus et demulcentibus; inter quae eminet Spir. Vitriol. cum adstringentibus.” — “ In Vasorum debilitate, scopus est elasticitatem restituere adstringentibus interne et externe applicatis.”

Indication.

V. OF WEAKNESSES.

WOMEN of lax habits are commonly subject to this disorder.

The seat of this disorder is in the mucous glands and exhalant arteries.

The remote causes are moist air, indolence, translation of humours, immoderate flux of the menses, miscarriages, &c. The proximate are serous colluvies, and laxity of fibres.

The symptoms are want of appetite, depraved appetite, difficulty of breathing, swelling of the eye-lids, hectic fever, pain of the loins, turbid urine, sadness, palpitation, and fainting.

To cure this disease, the same Home lays down two intentions. 1. “ Ut humorum vitium corrigatur, et fluxus ad uterum impediatur. 2. Ut tonus uteri restituatur.” For correcting the fault of the humors, he proposes diaphoretics, fontanells, &c. For restoring the tone of the parts strengtheners, and astringents.

Cure.

VI. OF GLEETS.

GLEETS proceed from simple relaxation; venereal taint, and corrosive injections.

IN this, and the two last diseases, the cure must be adapted to the cause, constitution, and nature of the distemper.

Were these waters properly assisted by medicine, many more might find relief. False delicacy has made women conceal their infirmities till loss of appetite, indigestion and unnatural discharges have reduced the best constitutions to skeletons. In general, we may affirm that where febrifuges, balsamics, and astringents have resisted the whole artillery of the shops, Bristol waters have performed cures. In subduing the fever, healing, and strengthening the parts, Bristol waters answer every intention proposed by the judicious Home. Where they fail of cures, they mitigate symptoms. Names, and cases, I forbear to mention. Many are the annual visitants, proofs of my assertion.

C H A P. XVII.

OF DISEASES OF THE STOMACH AND GUTS.

UNDER the head of Diseases cured by Bath Water, I have treated particularly, *Of Diseases of the First Passages.* Both waters cure the same diseases; but, in all cases, they are neither equally salutary, nor safe.

I. OF THE STOMACH.

THAT Bristol water creates an appetite is a fact notorious. That it removes heart-burns, squeamishness, and pains of the stomach, is equally notorious.

Seven years ago, Mr. Garden, of *Troup*, in *Aberdeenshire*, came to Bath for an obstinate pain of his stomach. The Bath waters irritated his disorder. By my advice he drank these; in one fortnight was completely cured, and now remains in perfect health.

II. OF THE GUTS.

AMONG Bristol water drinkers, costiveness is so common a complaint, that we generally guard against it in our prescriptions.

1. Under the section of *Gravel* and *Stone*, I have already mentioned Mr. Martin's cure of an obstinate diarrhoea.

2. Captain Williams, of the Artillery, (by hard duty at *Martinique*, and the *Havannah*) was attacked with a bilious fever and flux that resisted all endeavours there: The Bath waters exasperated.

rated every symptom, adding a cough to his other train of evils. At last I prevailed on him to try these waters, which, in a very few weeks, restored him so much that he married before he left the Wells.

3. In much the same condition, Mr. Shepherd, of *Antigua*, came to Bath, with the addition of a pain in the region of the liver, and constant cough. Against my opinion, he obstinately persisted in the use of Bath waters, which aggravated every symptom. In a very few weeks Bristol water banished every symptom.

4. Lieutenant West, of the twenty-second regiment, (by hard duty at *Martinique*, *Dominique*, and the *Havannah*) was afflicted with a flux, which defied the most judicious prescriptions there and in *North America*. Dr. Huxham advised the Bristol water, which he drank about one month, with great benefit. By my advice he completed his cure by warm bathing at Bath; and that with the assistance of eggs boiled up with milk, his constant diet only.

SIR, *London, August the 20th, 1763.*

“ In gratitude to the Bristol Waters, as well
“ as for the benefit of future sufferers, I give you
“ leave to publish the following history.

“ Soon after the reduction of *Dominique*, where
“ I had the honour to command, I was seized
“ with the intermittent fever of that country,
“ from which I had recovered but a short time,
“ when the fatigues of the expedition to *Marti-*
“ *nique* brought on a relapse.

“ I went afterwards upon the expedition a-
“ gainst the *Havannah*, where my duty as Briga-
“ dier General was interrupted a few days be-
“ fore the reduction of the *Moro*, by a third re-
“ lase

“ lapse attended with a violent *flux*. By the advice of the physicians I returned to Britain as the only chance I had, of recovering my health.

“ I sailed from the Havannah the 19th of July, and arrived at Dover the 9th of September: almost immediately upon my landing, I had a return of the *fever* and *flux* to a violent degree. Though both the disorders yielded to the medicines that were prescribed for me by an eminent Physician in London, yet during the whole winter and spring I was subject to such severe relapses (the *flux* generally preceding the *ague*) that I was reduced to a skeleton.

“ I also suffer'd much uneasiness from an inflammation in my mouth and tongue, which reached to the anus, and was almost perpetually teized (especially in the night) with making water.

“ I set out for Bristol about the end of March, still liable to frequent and violent returns of the *flux*, but entirely free of the *ague*.

“ The complaint of my mouth and tongue, and the frequent pissing before-mentioned, were still very troublesome, and continued so for a considerable time after my arrival at the *Hot Wells*.

“ By the use of the water for six weeks, the *flux* almost entirely left me at this time. At this time I confined myself to a milk diet, which consisted chiefly of butter-milk, with broth. By this regimen, and the continuance of the water (without the help of any medicine) I got free of all my complaints about the end of June.

Sir, Your most obedient humble servant,
To Doctor Sutherland.

Rollo.

C H A P. XVIII.

OF EXTERNAL DISORDERS.

FROM what has already been advanced on the subject of the powers of the particular *External disorders.* principles contained in waters in general, we may reasonably conclude that Bristol water has its external virtues as well as others.

Underhill, in his page 28, expresses himself thus: "The Scorbute is *Proteo-mutabilior*. From a salt diathesis of the blood, the acuated serum espuated among the muscles is a *Rheumatism*, on the hip a *Sciatica*, on the lungs a *Catarrh*, in the guts a *Dysentery*, or *Diarrhœa*. By all the skill that I pretend to, the Bristol water bids fairer to cure external disorders than pearl preparations.

1. "Mrs. Watkins, of Bristol, from the West Indies, breaking out with fiery scorbatical eruptions all over, was perfectly cured, in three weeks time, by drinking the Hot Well water."

2. "William White, of Bristol, was afflicted with sores fresh arising, and constant running white blisters from both his elbows to his fingers ends, called St. Anthony's fire, that he could not help himself. After various other remedies, he was at last cured by drinking, and bathing in the Hot Well water."

3. "John Sanders, of Bristol, had a great weakness and lameness, his knees and body blistered, and spotted all over, and almost eaten up with the *Scurvy*. By drinking the Hot Well water, he was perfectly cured."

4. "Mr.

4. "Mr. Packer, of Bristol, wine-cooper,
 certifies, that his brother had an ulcer of seven
 years standing, in the calf of his leg, from a
 gun-shot-wound. After all remedies tried in
 vain, he was cured by drinking this water six
 weeks only.

"Thomas Packer."

5. "John Belcher, of the *Castle Precincts, Bristol*, at four years old, had an ulcer in his ankle four years, with a hole quite through, out of which came several bones, being all the four years under penance, was at last perfectly cured by bathing and drinking.

"Jane Belcher, his mother."

6. "Mary Ayliff had a tumor in her lower lip, of the bigness of a hazle-nut, and hardness of a stone, continually running at the mouth, as if salivated, and blind with the same carcinomatous humour, for at least fourteen days, judged an incurable cancer, and so left, after four years trial, in despair. By drinking, and bathing the parts, she is of perfect sight, and good health, praising God, and desiring this publication for the sake of others under the like melancholy circumstances.

"Mary Ayliff."

7. "Mr. Lucas's son, of Bristol, at four years old, had his arm miserably swelled and inflamed, running at eight or nine holes, deemed the King's Evil, and incurable. By gentle purging, drinking, and bathing, he was perfectly restored.

"Eliz. Lucas, his mother."

M 5.

8. "Mis-

8. "Miss Lancaster, of Castle-green, Bristol,
 " at six years old, had the King's-evil running at
 " one finger, out of which came a bone, with a
 " running in her left cheek and left hand; her
 " foot and toes hard, and cruelly swelled. By
 " drinking, bathing, and medicines intermixed,
 " she was cured.

" *Mary Lancaster.*"

9. "Mrs. Demster, of College-green, Bristol,
 " had her sight so depraved with an inflammation,
 " supposed to be the *Evil.* that, for four months
 " she could not bear the light. After all other
 " unsuecessful trials, she drank, and bathed her
 " eyes, and is now, after ten years, quite well.

" *Sarah Demster.*"

19. "Thomas Reynolds, of Bristol, Mason,
 " had the *Evil* six years, running quite through
 " his thigh, scars dismal, out of which worked
 " several bones, one an inch broad, and two
 " inches long. After K. James's fruitless touch,
 " with the miserable slashing of surgeons, he
 " was reduced to skin and bone. By drinking
 " the water in great quantities, and constantly
 " moistening the parts with rags, dipped in the
 " water, he is now, and has been well for
 " years past.

" *Thomas Reynolds.*"

C H A P. XIX.

O F R E G I M E N T.

IN the three first chapters, I have endeavoured to ascertain the nature and qualities of Bath and Bristol waters. In the fourth *Preamble*, I have rationally accounted for their virtues. In the rest I have reconciled the observations of former inquirers to particular diseases. These I have not only confirmed by my own experience, but I have extended the virtues of both waters, to diseases neglected and unpractised.

Physicians sometimes have it in their power to cure diseases. Patients have it in their power to prevent diseases, or to preserve health. From ignorance, or contempt of necessary cautions, thousands fall short of that period which natural constitution might have reached. Such are the cautions which I have reserved for the subject of this my last chapter.

In Mineral-water Essays, for the expence of a few shillings, there are patients who vainly expect rules and prescriptions sufficient for the whole of their conduct. Authors who thus amuse, make their readers trust to broken reeds. At Bath there is a *General Infirmary* for the reception of cases appropriated to Bath water only. At Bath and Bristol Hot Wells, no man withholds his advice from the poor. People of straitened circumstances of all persuasions, ranks, or professions are freely welcome to mine. What safely I can I freely impart. What patients owe to themselves I think it my duty to point out.

1. ONE general caution there is which can admit of no exception. Patients never ought to

come to water-drinking places without historical deductions of their cases. Family physicians are the only judges of constitutions. One bears evacuations of all sorts; another is ruffled by the mildest. To some opiates are cordials divine; ten drops of liquid laudanum run others mad. The same may be said of musk, mercurials, aloes, and every active medicine. At this very time I have a patient, to whom I now and then give one drachm of syrup of poppies only; for three days after, he can hardly keep his eyes open. The whisper of a family nurse is worth the first thoughts of a *Fræken*. Physic is at best a *conjectural art*; this is the opinion of the great Celsus.

2. CHRONICAL DISEASES. fall under the province of natural medicated waters.

In chronical diseases, who can promise sudden cures? Sydenham (*De podagra*, p. 576,) says, "No man in his senses can expect that momentary alterations can perfect the cure. The whole habit must be changed, the body must be hammered out anew." Suppose a young maid labouring under the green sickness; how flaccid her solids, how poor her blood! Can poor blood be changed into rich in the course of days? Can the solids so soon be braced? In curing chronic disorders, physicians rationally change the whole manner of living. In his *Epidemics*, Hippocrates proposes a change of the humours only. In chronic diseases, new manner of living, new air, new faces, new amusements, and new objects are necessary. In chronic disorders regimens are not wantonly to be changed, even tho' they give not immediate relief. This is Celsus's opinion, *page 112*. In chronical illnesses, the sick ought not to be flattered with hopes of speedy cures. Forewarned, they chearfully bear the *taedium*.

rium of both disease and cure; they put confidence in physicians who never deceive them. Suppose purulent ulcer occupies the liver, who can promise a cure?

3. PATIENTS labouring under similar ailments, naturally compare notes. By officious acquaintances, the weak, dispirited, and hectic, are persuaded to follow the regimen of the strong, hearty and phlegmatic. For the saving a fee, patients throw away the whole expence, and their lives into the bargain. When they find themselves worse, i. e. when medicines irrationally continued, and waters improperly used have produced symptoms which cannot be relieved, the Doctor has a fresh summons. What benefit can patients expect from physicians in whom they place so little confidence? Of general precautions, the reader will find store in my *Attempt to revive the antient doctrine of Bathing*. In respect of *Diet, Exercise, Air, Sleep, Evacuation, and Affections of the mind*, there are certain rules and cautions, without the observance of which, neither mineral waters, nor medicines of any sort can avail. Of these in their order.

§. I. OF DIET.

PROVIDENCE seems to have furnished every country with a mixture of foods proper for support. The natural productions of countries are, generally speaking, most friendly to the constitution. The common food of cold climates would ill suit the natives of southern. A pound of roast beef, and a quart of porter would endanger the life of an Indian. A piece of sugar-cane, and a cup of water, would soon reduce an Englishman to a skeleton.

I. When.

1. When we take in a larger quantity of aliment than our digestive faculties are *Excess.* able to assimilate, such never can turn to good nourishment.

2. When our food is highly saturated with pungent salts and oils, such *High sauces.* sauces or mixtures corrupt the blood.

3. People of gross habits and feverish disorders *Gross habits.* should eat sparingly. For, with such, the best food turns to disease. *Impura corpora, quo magis nutrit, eo magis laedis.*

4. Unseasonable abstinence has also bad consequences. For, without a supply of *Fasting.* fresh chyle, animal juices naturally acquire a putrescency. Inanition produces fevers of the worst sort, as those who fast too religiously feel to their cost.

5. In chronic disorders, experience best tells what agrees, or disagrees. Such a quantity is to be taken in as is sufficient to support, not to overload the stomach, to finish the meal with a relish for more. The food ought to be well chewed. Flesh pounded in a mortar ferments much sooner than in one solid lump. Whatever corrupts slowly oppresses the stomach. The weak, emaciated, hectic, or consumptive ought to observe the strictest regimen. To such, excess in things the most innocent is perilous.

6. Nature abhors discordant mixtures, fish, flesh, wine, beer, cyder, cream and *Mixtures.* fruit. These distend the bowels with wind, and prevent digestion.

7. *BREAD, milk, and the fruits of the earth dressed in a plain simple manner, together with water, were the aliment of Adam's family.*

The

The first inhabitants of *Greece* lived on the spontaneous productions of the woods and fields. The *Golden-age* seems rather to have taken its appellation from its simplicity of manners, than delicacy of food.

*Contentique suis nullo cogente creatis
Arbuteos faetus, montanaque fraga legebant.*

Hesiod, Pliny, and Ovid, ascribe the invention of tilling the ground and sowing corn to *Ceres*. *Bread.*

*Prima Ceres unco glebam dimovit fratre,
Prima dedit fruges, alimentaque mitia terris.*

Bread made of the purest flower of wheat nourishes much, and binds the belly. Mixed with bran it is opening, and nourishes less. The *Farinacea* are all antiseptics. Wheat-bread properly fermented, and well baked, is the most valuable part of diet.

8. MILK is already elaborated, prepared and digested in the body of the animal. It *Milk.* is an extract of animal and vegetable food. It is replete with nutritious juices, and wants little else than the colour to be blood. Milk was strongly recommended by the antients. The milk of *Stabiae* was in great vogue. Thither consumptives were sent, not only on account of the sea-vapour, and the air of *Vesuvius*, but for the excellency of the milk. The *Mons Lactarius* of *Cassiodorus* is thought to have been there, a place celebrated for salubrity of air, and fanative milk.

One *Davus*, who went thither in a consumption writes thus, " *Huic ferocissimae Case.* " *passioni beneficium montis illius di-*
 " *vina tribuerunt, ubi aeris salubritas cum pin-*
 " *guis arvi fecunditate consentiens, herbas pro-*
 " *ducit dulcissima qualitate conditas, quarum pas-*
 " *tu vaccarum herba saginata lac tanta salubrita-*
 " *te-conficit, ut quibus medicorum consilia nesci-*
 " *unt prodesse, solus videatur potus ille praestare*
 " *reddens pristino ordine resolutam passionibus*
 " *vim naturae. Replet membra evacuata vires effe-*
 " *tas restaurat, et fomento quodam reparabili aegris*
 " *ita subvenit, quem ad somnus labore fatigatis.*"
Cassiod. Lib. xi. Variar. Epist. x.

Baccius (*De Thermis*, lib. iv.) says, *Neopolitani Medici pro ultimo refugio aegros phthisicos, et qui san-*
guinem exspuunt, vel ejusmodi thoracis ulcera, et alia
vitia patiuntur, ad Tabeas mittunt cum successu adeo
salubri, ut sint qui in iis totam degunt vitam. Later instances there are not a few of consumptives who went to the same place with Davus's success. Sir Hollis Man was so bad when he embarked, that his coffin was carried with him. He has lived many years in Italy, and is now British Resident at Florence.

Of equal numbers, I verily believe, there are as many cured of consumptions by *Goat-whey*. goat-whey, as by Bristol water. Milk is often drank under great disadvantages, either in improper air, or in moorish mountainous places, where fogs and moisture compose an atmosphere unfriendly to wounded lungs. Fit places may surely be found on sea-coasts, as *Stabiae* was, where the pasture might be improved by propagating the tribe of the vulnerary plants, agreeable to a hint given by Galen. Such places are the faces.

faces of the hills and cliffs around the *Hot-Wells*.

WHERE feverish heat predominates, in costive habits especially, butter-milk and brown bread are specifics. Boerhaave lived on this *butter-milk* very diet for many years. His pupils have introduced it every where. In England it is even now the food of hogs. When I first introduced it at the *Hot-Wells*, my advice was treated with ridicule; I could hardly prevail on three to make use of it the first season; two of the three were *Irishmen*. The practice is now universal.

“ Dr. Baynard (in his Appendix to Floyer’s book on cold Bathing) assures his readers, that “ by *butter-milk*, several, to his knowledge, were “ cured of *flushings*, *preternatural heats*, and some “ of confirmed *hectics*. He quotes the concurring testimonies of Sir John Hodgkins to the same purpose.—“ Toby Purcell, *Cases*.
“ Governour of *Duncannon-fort*, hath
“ drank nothing but *milk*, and eat *bread* for more
“ than twenty years, which cured him of an in-
“ veterate gout.—Mr. William Masters of *Cork*,
“ drinks nothing but *milk*, and has recovered
“ his limbs to a miracle.—I have had lately
“ sent me some remarkable *Cures* in both *Atro-
phies and Phthisies* by drinking *Goats-milk*. The
“ common Irish feed on potatoes, and sour skim-
“ med milk. This may be the reason why they
“ are generally free from *pulmonic coughs*, and
“ *consumptions*.”

Theophilus Garencieres (in his book *De Tabe Anglicana*) says, “ *Hyberni solo lactis usu qui ipsis pro potu, et cibo est, ab hoc malo se tuentur. Lac enim parte ebutyrato optime nutrit, et sanguinem laudabilem generat; parte serosa plurimum abstergit*,”

“ *git, et caseosa astringit, quae omnia ad pulmonis
robur conservandum non parvi sunt momenti.* ”

Baynard gives a remarkable instance of the effect of *Butter-milk*, and *Tepid Bathing*. “ Mr. Hanbury of Little Myrtle, aged twenty-three, was highly feverish, with heat, thirst, quick pulse, little urine, mouth parched, reduced to skin and bones by an old ague. I prepared a Bath with violet, strawberry leaves, cichory, plantane, &c. He was bathed twice a day for seven weeks, taking nothing but butter-milk. By degrees he rose to other food, and has since had children by two wives.—Several, to my knowledge have been cured of *flushings*, *ternatural heats*, and some of confirmed *hectics* by the sole use of *butter-milk*.—Sir John Hod-kins, President of the Royal Society told me, that, to his knowledge, diverse persons had been cured of *hectics*, and *phthisies*, by the sole use of *butter-milk*.—Mr. Heby told me two instances of his tenants cured of hectic fevers by drinking of *butter-milk*. ”

B. Dempsey, Clerk to Mr. Macartney, Merchant of Bristol, laboured of a violent fever with nocturnal exacerbations, which brought on deliriums, profuse sweatings, and constant vomiting, which occasioned a most putrid stench, not a little assisted by the air of the chamber where he lay, which was dark and close. By Dr. Drummond’s advice and mine, he took medicines and ptifans, which he constantly threw up; as he did anti-emetics of every sort. Despairing of means of relief, I proposed four butter-milk, which he drank and kept. When we returned next day, we found every symptom mended. We ordered butter-milk for medicine and food. He recovered.—Next year (in the same bad air) he was seized.

seized with a fever of the same kind. The same medicines were tried in vain. No sooner began he the use of *butter-milk*, than he began to recover, and now enjoys a perfect state of health.

IN acute distempers, Hippocrates has laid down rules which have rarely been mended. These fall not properly under my theme.

9. WHEN the fruits of the earth had undergone so great a change by the *Deluge*, God permitted man to eat flesh. *Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things.* The clean beasts were taken into the *Ark* by sevens; the unclean by twos. The surplus of the first was probably intended for the provision of *Noah* and his family. Moses was the first writer who selected a particular food for the *Jews*, viz. *Bread, wine, milk, honey, quadrupeds that divided the hoof, and chew the cud, all the feathered kind, and fishes that have fins and scales.*

The flesh of animals in their prime of life, of such as are castrated, and not used to hard labour is best.

The flesh of granivorous birds is not so oily as that of water-fowls. Mutton is the best of all flesh, for the delicate and robust. Bath and Bristol Hot-well mutton are excellent. Beef and pork are proper only for the strong, and those who use hard exercise.

10. POND-FISH, such particularly as are fat are hard of digestion. Such as are caught in rivers near the sea-shore are *Fish.* lighter. Boiled fish is lighter than roasted.

SEA-SALT moderately used with animal food, is wholesome. To excess, the reverse. In inflammatory disorders, sea-salt stimulates too much. By living on animal-food where salt was not to be

be had, there are not a few instances of garrisons and towns being over-run with scurvy, and fevers pestilential. This particularly was the case at *Gronningen*. We read of a people of the *East Indies* prohibited the use of sea-salt. These are notoriously infected with putrid mortal diseases. In that part which treats of the virtues of the component parts of *Waters*, I have proven that sea-salt prevents putrefaction.

Bitters. 11. Bitters bind the belly. Acids grieve the bowels. Salted things promote stool and urine. Sweet things breed phlegm.

Alcalescents. 12. Onions, leeks, radishes, and all the alcalescents are antiseptic. Mustard, and cresses occasion a difficulty of urine. Celery is diuretic. Aromatics heat. Col-worts and lettuce cool. Cucumbers are cold, crude and hard of digestion. Ripe fruits open the belly. Unripe bind. Pulses of all sorts are windy. Honey promotes urine and stools. Soft bread increases acidity in stomachs troubled with heart-burns; biscuit less. Confections and dainties tempt people to eat too much, and are therefore hard of digestion. Where the aliment ferments too violently from putrescency, or from debility of the stomach, acids, bitters, aromatics and alcalescents are proper. If cold cacochymy is added to bad habit, the patient ought to abstain from farinous foods and gellies, because these increase the tenacity of the humours, and e. c. If the body begins to be puffed up with watry humours, broths are sparingly to be used. Roasted meats, and fresh-water-fish with generous wine are indicated. If acid acrimony abounds, as in young people, eggs, broths, hartshorn jellies are best. If e. c. the humours tend to alkaline putrescency, barley broths, bread, and milks are the

the foods. Acid liquors are the drinks. If broths are allowed, they ought to be acidulated.

Physicians may be too churlish. Certain it is that patients generally digest those things easiest which their stomachs crave. People in fevers abhor meat; offer them butter-milk, or barley water acidulated, they snatch them greedily. Longings ought to be lessons to physicians. Hence it was Hippocrates (*De Affectionibus*) lays it down as a maxim, *Quoscunque cibos, aut obsonia, aut potus decumbentes expetunt, ea suppetant, si nullum corpori nocumentum sit futurum.* Aphor. 38, the same Hippocrates lays it down as another rule, *Meats and drinks not so very good are sweeter, and therefore to be preferred to better more unsavory.* “A tem-“pore consueta, etiam si deteriora, infuetis minus “turbare solent.” Numerous are the examples of patients being cured by things which they longed for, and which had been withheld as hurtful. “In the cure of diseases, Sydenham “advises physicians to pay more attention to the “appetites, and ardent desires of the sick (provi-“ded the things desired do not manifestly en-“danger life) than to the still more dubious and “fallacious rules of art.”—Suppose a cachectic labouring of alkaline acrimony longs for broth; broth acidulated may be allowed.—Women sometimes labouring of acid acrimony, long for vinegar with their food; they may be indulged, by giving them absorbent powders before dinner. By such artful condescensions, physicians win their patients hearts. *Concedendum ali- quid et consuetudini, et tempestate, et regioni, et aetati,* says Hipp. Aph. I—17.

*Rigorous se-
verity the
child of igno-
rance.*

*Longings,
useful indi-
cations.*

Statical
proofs.

13. By *statical experiments*, *Sanctorians* have discovered, That the body perspires but little while the stomach is too full, or too empty,—That full diet is prejudicial to those who use little exercise, but indispensably necessary to those who labour much,—That food the weight of which is not felt in the stomach, nourishes best, and perspires most freely,—That he who goes to bed without supper, being hungry, will perspire but little ; and, if he does so often, will be apt to fall into a fever,—That the flesh of young animals, good mutton, and bread well baked are the best food,—That the body feels heavier after four ounces of strong food that nourishes much, such as pork, eel, salt-fish, or flesh, than after six ounces of food that nourishes little, such as fresh fish, chicken, and small birds. For, where the digestion is difficult, the perspiration is slow.—That unusual fasting frequently repeated brings on a bad state of health,—That the body is more uneasy and heavy after six pounds taken in at one meal, than after eight taken in at three,—That he destroys himself slowly who makes but one meal a day, let him eat much or little,—That he who eats more than he can digest is nourished less than he ought to be, and so becomes emaciated,—That to eat immoderately after immoderate exercise of body or mind is bad ; for a body fatigued perspires but little.

Drinks.

14. Not long after the deluge, it is probable, *Beer* was invented ; for Herodotus informs us, that in the corn-provinces in *Egypt*, where no vines grew, the people drank

a sort of wine made of *barley*, *Ὥρνα εκ κριθαρών πεποιημένων*. Those who have been accustomed to beer ought not to be severely interdicted its use; beer seems to have a more durable effect than wine. Mum, or strong beer, which is an extract of corn, taken in small quantities with biscuit, proves an excellent medicine in disorders proceeding from cold lento. Its spirit is fixed in a more tenacious bond, and therefore produces more durable effects. Wine, beer, cyder, perry and all fermented liquors are antiseptic. When beer neither oppresses the stomach, nor binds the belly, but passes by urine, it may be allowed. Where it generates wind, passes sluggishly, or breeds stony concretions, it ought not.

“ NOAH began to be a husbandman, and he
“ planted a vineyard, and he drank of the wine,
“ and was drunken.”

Wine drank too freely weakensthe man, *Wine*. as may be seen by his actions. Sweet wines promote stools, but they excite flatulency and thirst; they promote expectoration, but impede urine. Tawny austere wines are good when the body is loose, provided there be no disorder in the head, no impediment in spitting, or making water. Pure wine is best for the stomach, and bowels. Diluted with water, it is best for the head, breast, and urinary passages. Strong Spanish, or Hungarian wines strengthen the stomach wonderfully.

15. MINERAL WATERS are possessed of a spirit which helps digestion and promotes sleep. Patients require but little pure wine while they drink water. Hectics ought to drink none. Mineral waters are all hard, and therefore unfit for domestic purposes, until they are robbed of their acid,

*Mineral wa-
ters improper
at meals.*

acid, by boiling. Injudicious as well as common, is the practice of drinking Bath-waters at meals. People of lax bowels may drink them, none other. Pure soft water is the best of all diluents, especially to those who are naturally costive. Those who are troubled with stomach-complaints, ought to drink wine, or rather *rum*, or *brandy*. The latter are lowered with water only; the former are composed of we know not what.

16. TEA and COFFEE are now the principal beverages of the kingdom; at mineral-water places, as much as any other. There ^{Tea and Cof-fee.} have been physicians of no small note, of the opinion that the fluids cannot be too much fused. From this notion they inculcate the perpetual dilution of the blood, by tepid watry liquors. Hence those encomiums of Bentekoe and others on Tea, Coffee, and other modern flip-flops. Our hardy ancestors made use of infusions of indigenous plants, made-wines, and beer. Nervous complaints were unfashionable in their days. From the prince to the peasant, Tea and Coffee are now in constant use. Never were nervous diseases so frequent as at this day. The question of Tea and Coffee cannot therefore be indifferent.

Luxury and avarice seem to have conspired in multiplying the names of Teas. Teas of all sorts are, most certainly, leaves of the same shrub; different sorts take their names from the different countries, or different manner of manufacture; just as we produce different beers from malt high, or slack dried.

Bohea. BOHEA is the most natural, simple, and most salutary. In gathering the Bohea, the trees are never injured; the leaves advance

advance to full maturity, fall, and are preserved.

GREEN TEA is plucked separately from the shrub, just as the leaf, in full verdure, begins to expand. Injured by this violence, the trees rarely bud again for years.

Green Tea.
Naturally, the leaves are so disagreeably bitter and astringent, that to render them palatable, the Chinese infuse both sorts for a certain space in water. After this infusion, the Bohea leaves are generally dried in the sun and preserved for use. The green is dried in caldrons, or on plates of copper heated. The natives who roll, mix, and turn the leaves, are obliged to arm their hands with leathern gloves to defend them from the metallic efflorescence. In Holland, as well as in Britain, there are itinerants who make a trade of purchasing tea leaves which have been used; these they re-manufacture so dexterously by tinging, rolling, and drying, that they easily impose on those who are fond of bargains, or any thing that has the appearance of being smuggled.

THE leaves discover a degree of bitterness conjoined with a gentle astringency, discoverable by taste, as well as by vitriolic infusion, without any sensible heat or acrimony. Simply infused in water, tea braces the fibres of the first passages, and thus promotes digestion; it dilutes and dissolves the fluids, relaxes the solids, promotes urine, corrects acrimony, cools, quenches thirst, and diverts sleep. Hence useful in inflammatory, lethargic, iomatous, gravellish disorders, flatulencies, and headaches from hard drinking. The Asiatics chiefly indulge in Bohea. The higher priced green they reserve for European markets.

Manufactured, sophisticated, or mixed, the virtues of Tea can only be estimated from a knowledge of the several ingredients with which it is usually compounded. Mischiefs imputed to the plant are often due to practices foreign, as well as domestic. This seems to gather strength from a comparative view of the similar effects of excess in tea, and small doses of verdigrease. Both excite tremblings, vomitings, sickness, languor, dimness of sight, palpitation, paralytic affections, with all those consequences which accompany weak fibres and watry fluids. In his *Academical Praelections*, I remember Doctor Alston affirmed, that (after repeated trials) he found that tea drinking occasioned a glaring in his eyes, affecting his speech; which Kempfer (in his *Amaenitates Exoticae*, pag. 605 to 608) confirms, classing it among the malignants, or those which are unfriendly to the brain and nerves.

COFFEE, in respect of its effects good or bad, may be classed with tea. It is a kernel cloathed

Coffee. with a thin membrane, and a sub-acrid pulp of a leguminous bitterish taste, before it is roasted. In roasting, a volatile salt flies off, the oil becomes a veritable *oleum ambustum*. In drying, the tea actually undergoes the very same proeess; but its quantity of oil is so very inconsiderable, that it discovers nothing of an *empyreuma*.

The virtues of Coffee seem to depend on the oil; which, by burning, becomes so changed, as to be unfit for the purpose of nutrition: It may be of use in cases where the weakness of the first passages can be assisted by a gentle stimulus. In this case it proves cephalic, quickens the circulation, promotes perspiration, and is nervous; roasted peas and beans yield

yield a substance near akin to it. Used in excess it has all the bad properties of tea.

The best purpose that I know tea or coffee good for, is to clear the head, and divert sleep, when I have a mind to protract my studies to late hours. For the purpose of dilution, infusions of *sage, balm, rosemary, lavender, valerian*, and many other indigenous plants are equally good. In cases where tea and coffee are pernicious, these are remedies. Were they of foreign extraction they'd be much more valued.

THE hardest parts of animal bodies exposed to the vapour of warm water, become soft ; harts-horns thus becomes scissible. From the abuse of warm water, Hippocrates enumerates *carnium effeminationem, nervorum impotentiam, mentis stuporem, haemorrhagias, animi deliquia*. In Van Eem's Collection of Boerhaeve's academical prelections *De Nervorum morbis*, we find that illustrious physician complaining that he had seen many abused by such slops, so enervated that they hardly dragged their languid members after them, some afflicted with apoplexy and palsy. " *Notum est toties morbum chlorosin, et sumnum languorem, uteri haemorrhagias fieri mulieribus, dum potibus aquosis tepidis abutuntur.*"

Theorists forget the natural state of the blood in health. " *Open the vein of a dairy maid, the blood, as it flows from the orifice, concretes instantly into a solid mass.*" — " *Open the vein of a valetudinarian, the red globules and the serous swim about in a flimsy ill-coloured homogeneous fluid.*" By this observation alone, practitioners know, that by too great dilution, fox-hunters may be converted into fribbles. Without a certain degree of spissitude, the humours cannot be kept within their proper canals.

If the red globules are melted down to the consistence of serous, the sanguiferous vessels become empty. If the serous acquire the consistence of lymphatics, all those evils which proceed *ab errore loci* must insue. The whole will, in time, pass through the exhalant vessels, the body must be consumed. In sound bodies, the natural heat is maintained while the solids and fluids preserve their natural disposition. But, if the humours come to be too much diluted, the solids naturally become flaccid. Hence languor and chilliness. The watry part of the blood accumulates in the cavities of the body ; hence *Cachexy*, *Dropsey*, &c.

Were the custom of tea drinking confined to people of rigid fibres and active lives ; the penetrating quality of the fluid added, to the saponaceous anti-septic property of the sugar, would render the infusion miscible with the blood. Obstructions might be removed, acrid salts diluted, viscid phlegm dissolved. The astringency of the plant might answer the good purpose of passing off the liquor more quickly. The sanguinary, biliary, phlegmatic and melancholic might all find relief. Fevers might be prevented in the young, aches and obstructions in the old. The belly might be kept soluble, the urinary passages cleansed, and insensible perspiration, the healthiest of all secretions, might be promoted.

But, such is the force of example ; the lazy, indolent and effeminate, men and women of weak nerves, relaxed fibres, and foul juices, indulge themselves, twice or thrice a day, in the immoderate use of a tipple, which enervates more and more. They dilute medicated waters with water warm and relaxing. They dread the effect of the plant which (by its astringency) is calculated to brace the muscular coat of their weak

weak stomachs. They make use of an infusion so weak that it relaxes more and more. Hence indigestion, sickness, fainting, tremours, with all their direful consequences. The contractile fibres lose their elasticity, the food lies like a load. Hence sourness, flatulencies, vapours, &c. They desert the springs of health with disgust, while they daily labour to counteract the virtues of the waters.

THOSE poetic proofs which close the different sections of this last chapter, are extracted from Dr. Armstrong's most ingenious poem on the *Art of preserving Health.*

“ PROMPTED by instinct's never erring power,
 “ Each creature knows its proper aliment ;
 “ But man, th' inhabitant of ev'ry clime,
 “ With all the commoners of nature feeds.
 “ Directed, bounded by his power within,
 “ Their cravings are well aim'd : Voluptuous man.
 “ Is by superior faculties misled ;
 “ Misled from pleasure ev'n in quest of joy.
 “ Sated with nature's boons, what thousands seek,,
 “ With dishes tortur'd from their native taste,
 “ And mad variety, to spur beyond
 “ Its wiser will the jaded appetite.”

§. II. OF AIR.

IN my Treatise *Of the use of Sea Voyages*, and in my chapter of *Pectoral Diseases*, I have treated of the properties of air. In this section, for the sake of method, I propose only to lay down general cautions relative to domestic air.

1. AIR has an inconceivable influence on the human frame. Man may live whole days without food ; not a moment without air. Epidemical diseases attack persons of *Air.* all ranks, those who differ extremely in point of

diet, exercise, amusement, occupation, &c. In his judicious *Observations on the Diseases of Minorca*, Dr. Cleghorn has observed, that the diseases which affected the regular temperate natives, and the drunken irregular soldiers, were the same in point of violence, attack, and duration.—In such cases, change of diet avails but little. Those who dread infection must change air. No man in his senses would tarry in *Constantinople* during the plague.

2. PATIENTS have not always the means of travelling, or changing air. It is therefore the *Domestic air*. duty of those who watch over the health of their fellow citizens, 1. To measure the heat of the human blood, in different ages, constitutions, and diseases; and 2. To attend to those effects which different airs, winds, and seasons have on particular constitutions. If the climate cannot conveniently be changed, we always have it in our power to alter the nature and qualities of that particular atmosphere in which patients breathe; or, in other words, we may accommodate the nature of the air to the nature of that season which is known to be most healthy.

3. IN estimating the different degrees of heat, the antients wisely confirmed their observations by experiments. The same air and *Heat imaginary.* the same heat appear different to different people. The standard of fancy ever has, and ever will be a false standard. If we revolve Galen's book, *De Temperamentis*, we find an ingenuous confession in proof of our present position, *Lib. 2. cap. 2. apud Charterium, Tom. 3. p. 60.* “ *Et quid opus in tam dissimili- bus exemplum proponere? Cum ipse aer qui simili sit calore, varie tangenti occurrat, prout* “ *alius*

" alius veluti caliginosus, halituosus, alius fumosus,
 " fuliginosus, interdum purus omnino est. Igi-
 " tur in pluribus, iisdemque differentibus, aequali-
 " tas caloris consistit, quae in consideratis quasi in-
 " aequalis sit, imponit; propterea, sciz. quod non
 " undequaque similis appareat. Caeterum homo
 " qui rationes quas proposui expendat, et sensim
 " multa particularium experientia exercuerit, is
 " nimurum aequalitatem caloris in pueris, florenti-
 " busque, inveniet, nec eo falletur quod alter in
 " humida, alter in secca substantia repre-
 " sentetur; quippe lapis aliquando pari cum aqua ca-
 " lone esse potest, nullum faciente discrimen quod
 " lapis siccus sit, aqua vero humida. Ita igitur
 " mihi, cum pueros, juvenes, adolescentes mil-
 " lies considerasse, praeterea eundem, infan-
 " tem, puerum, adolescentemque factum; nihil
 " lo calidior visus est, nec puer quam aetate flo-
 " rens, nec aetate florens quam puer, sed tan-
 " tum quemadmodum dixi, in pueris magis halit-
 " uosus, et multus et suavis; in florentibus ex-
 " iguus, siccus, nec similiter suavis esse caloris
 " occursus. . . . Itaque neuter simpliciter videtur
 " calidior; sed alter, multitudine ejus quod di-
 " flatur, alter acrimonia."

4. MODERNS taking it for granted that heat proceeded from *attrition*, rarely confirmed their opinions by experiments; or made their experiments in a vague negligent manner. Galileo, Drebelli, Paschal, Farenheit, Reaumur, and others have devised thermometers for determining the natural heat of bodies of all sorts, animate or inanimate. Boerhaave, Hales, Derham, De Sauvages, and others inform us of the degree of heat; but keep us in the dark in regard to the time of the application of the thermometer. How far such

Experiments inaccurate.

experiments are to be depended on, we now proceed to inquire.

5. UNIVERSAL EXPERIMENT determines the heat of the human body, at middle age, and in a state of health, at 95, 96 degrees.

Heat different. But there have been found instances of men in health, whose natural heat has constantly raised the mercury, some to 97, rarely to 98, and more rarely to 99. How erroneous would it be to treat such as feverish, when this heat was only constitutional !

FROM an opinion that one of the principal uses of external air was to cool the blood as it circulates through the pulmonary vessels, *Air cools and accelerates.* Hales, Boerhaave, and other great men were of opinion, that man could not long subsist in air which equals, or exceeds the native heat. Under the aequator the same is the degree of heat with the natural. Men not only continue healthy under the aequator, but in many other parts whose heat exceeds that of the human body. Air seems not only to cool the blood, but to accelerate the circulation also.

6. IN his *Ratio Medendi*, professor de Haen (Cap. 3. *de aere, &c. cap. 19. De supputando calore corporis humani*) seems to have added much light to the present subject. *Accurate experiments.* With thermometers prepared by *Marci, Prins, Reaumur, and Farenheit*, he made experiments (to use his own words) *Non autem semel, deciesue, sed pluries ipsissima experimenta iterata sunt, et semper idem docuerunt.*

Under the arm-pit of a man in health, he put the thermometer for half a quarter of an hour, and found it rise to 95, 96. Continued for a quarter, it mounted to 97, 98, 99. For half an hour

hour 100, 101. For one hour 101, 102. For two hours it rose no higher.

Applied to the arm-pit of a man in a moderate feverish heat, for half a quarter of an hour, it rose to 100. After one quarter 101, 102. After half an hour 102, 103. After one hour 103, 104. —By other trials, in continued fevers, it rose to 106, in half an hour. In one hour to 109. Sometimes in half an hour to 103. In an hour to 105.—In a *Semi-tertian* composed of a continual fever and a quotidian intermittent, he observes that the patient was so very sensible of cold in the fit, that he could hardly bear it. In the mean time the thermometer rose to 104. The symptoms of the cold fit were evident, shivering, chattering teeth, shaking, and a perfect sense of internal chill, with a quick, small, contracted pulse. During the hot fit, the pulse was full, free and quick. In states so opposite, one would have hardly expected the same degree of heat. Experiment shewed the same exactly. Hippocrates Aph. 4. 48. 7.—72, says, *In febribus non remittentibus, si externa frigeant, et interna urantur, et sitiant, lethale.* This aphorism has generally been depended on; but this cannot be said to be the case of our patient; he complained of cold internal and external. In the cold fit, had not the thermometer been applied, no man would have believed that the heat exceeded the natural, by 7 or 8 degrees.—He gives the history of a man, who in a marble chill, which lasted twenty-four hours before death, without any sensible pulse, raised the mercury in the thermometer to 97. Here was heat exceeding the natural without pretence of attrition. The difference of heat between thermometers differently placed, he found 30.—From these experiments, our author

ingenuously concludes, that the degree of heat in persons sound and sick is rarely determined with that precision which such subjects require. The real degree of heat cannot be fixed in less than an hour. *Patientia igitur in experimentis, libero ab hypothesibus animo capiendis, muta dediscimus quae humana arrogantia perperam addidiceramus*, says De Haen, pag. 124.

IN this inconstant climate, winter and summer succeed one another, more than once, in the space of twenty-four hours. Our good and bad weather may truly be said to depend on the point of the compass.

Climate in-constant. South winds relax and open the pores. North winds brace and stop perspiration. Nothing can be more pernicious to invalids than air too cold, too hot, too moist, or too dry.

1. IF Hippocrates advised his patients to guard against the approaching cold of the autumn, in the serene climate of Greece, by *thick cloathing*, *ἐσθῆτι παχεῖν*, how much more reason have we to be careful?

Cloaths not rashly to be clarged. Mortalibus tum vitae, tum morborum causa est aer, he adds *De flatibus*, pag. 296. Sydenham condemns the giddy practice of laying aside winter garments too early in the spring, and of exposing bodies over-heated to sudden chills. This practice, he affirms, has destroyed more than famine, pestilence, or the sword. *De humor.* pag. 50, lin. 53.

2. RARELY have we opportunities of contending on the subject of cold air; oftener on that of heat. From cold, invalids sometimes suffer. To avoid this evil, some

plunge into a greater. In acute diseases, patients are not only shut up within bed-curtains, but buried under loads of blankets. Invalids

valids and people in health lift up every chink. Damned to hot bed-chambers, and self-perspiration, sick people are often broiled to death. Self-perspiration not only hurts by heat, but by putrefaction also. Hence difficulty of breathing, anxiety, dreams, delirium, miliary eruptions, and death. This practice was condemned by Forestus in *Germany*, 200 years ago; by Sydenham in England, and by every rational practitioner, all the world over.

To tender lungs, heat and cold are both unfriendly. That cold which chills the air about the morning's dawn, ought to be awarded by covering the head, neck, and breast, as well as by shutting the curtains. The air ought to be saturated with balsamic vulnerary effluvia. Powdered gums ought to be sprinkled on the embers. Fire ought to be kept up night and day, at an equal warmth, from 60 to 65, by a thermometer. Those who are able to get out of bed ought to walk into another room; the sheets ought to be aired, the windows and doors ought to be thrown open. Those who cannot get out of bed ought to be bolstered up thro' the day.

Consumptives ought to sleep in spacious upper rooms, and alone. If they require not constant attendance, nurses ought to wait in the adjoining room. From statical experiments, we learn, that (by absorption) the sick communicate their distempers to those who sleep under the same bed-cloaths. Heat and contact are, unexceptionably, pernicious to consumptives. Dr. Tronchin gives instances of wives being infected by sleeping with their husbands, in the *Dry Belly-Ach*. The summer effluvia of animal bodies taint the air to a degree sufficient to defeat every intention. While the ventilator played at Simson's room, on an assembly night, I tried to make an experiment

on the foul exhausted air. The smell was inconceivably loathsome, I could not bear it for a moment; nor can any man without danger of being poisoned. Foul air was the cause of the fatal catastrophe at *Calcutta*. Bed-chamber visits ought, for this reason, to be rare, and short. The windows and doors ought to be laid open in the day-time for a thorough perflation of air.

By covering a patient too warm, and by lecturing too long to seventy students, Professor De Examples. *Haen* ingenuously confesses that he

was the cause of miliary eruptions in a pulmonary case, *idque meo palam fateor neglectu*. From this error gaining experience, he gradually relieved the patient's body of part of the bed-cloaths; he passed him over slightly, in his rounds, referring his clinical lecture till he came into the hall. Remembering Sydenham's precepts and example, viz. *That eruptions caused by hot air, ought to be cured by taking the patient out of bed, and by medicines diluent and cooling*, all these he strictly followed; so that, by degrees, the man's anxieties decreased, his sweats abated; in four days time the miliary eruptions began to scale off, his strength increased, while the peripneumony began to throw itself off by expectoration. On purpose, he owns, he kept the patient longer than was necessary, in the Infirmary, that the Doctors and Students, *confirmatae ejus pancraticae sanitatis testes existerent*. *Quantine faciendus, in Medicina Sydenhamus!*

He says, he saw cases of the *Miliara vera*, which begin with a rheumatic fever, on the 4, 5, 6, 7, and 8th day. Some had eruptions on the chin, neck, breast, arms, and thighs. These lay in the common ward with patients of all diseases, breathing the same air, and laying under the

the same number of blankets. After three or four weeks, *omnes adepti sunt sanitatem*.—Bolder by experience, he treated a patient labouring of a putrid fever, and covered over with *petechiae*, just as he did patients in common; he took him out of bed every day, he drenched him with di-
 luents acidulated with spirit of sulphur: In the space of eight days he was free from eruptions and fever. “ *Sic sensim jugum quod humeris*
 “ *meis publicus clamor imposuerat excutere* vo-
 “ *lui, debui. Videram in Belgio foederato* prac-
 “ *ticos annosiores, qui monita Sydenhami ac Boer-*
 “ *haavii, in Variolis, Morbillis, Miliaribus, Pe-*
 “ *techiiis, Scarlatinis aspernati, horum morborum*
 “ *in curatione admodum infortunati essent: vi-*
 “ *deram alios qui Boerhaaviana scholo enutriti,*
 “ *Magistrique vestigiis presse inherentes, horam*
 “ *curam feliciter ederent. Recordabar et me Sy-*
 “ *denhami ac Boerhaavii vestigia prementem, hos*
 “ *eosdem morbos summo cum famae ac honoris*
 “ *incremento, cacteris, qui alias longa semitas*
 “ *calcarent reclamantibus, felicius curasse. Hinc*
 “ *audacter varios clamores flocci faciens, con-*
 “ *cludere debui, tam felicem esse horum mor-*
 “ *borum curam in aere Austriaco, quam suadente*
 “ *Sydenhamo in Britannico, quam suadente Boer-*
 “ *haavo in Belgico fuisse constat.*” De Haen *Caput*
 3. *De Aere, Decubitu, Sessione, aliisque circa aegros*
moderandis.

— — — — — “ Our fathers talk
 “ Of summers, balmy airs, and skies serene.
 “ Good heaven ! for what unexpiated crimes
 “ This dismal change ! The brooding elements
 “ Do they, your powerful ministers of wrath,
 “ Prepare some fierce exterminating plague.
 “ Or, is it fix'd in the decrees above

“ That

“ That lofty *Albion* melt into the main ?
 “ Indulgent nature ! O dissolve the gloom !
 “ Bind in eternal adamant the winds
 “ That drown or wither : give the genial west
 “ To breathe, and in its turn the sprightly north ;
 “ And may once more the circling seasons rule
 “ The year, nor mix in every monstrous day.”

§. III. OF EXERCISE.

THE body of man is made up of tubes and glands fitted to one another in so wonderful a manner, that there must be frequent motions, concussions, and agitations to mix, digest, and separate the juices, to cleanse the infinitude of pipes and strainers, and to give the solids a firm and lasting tone. Exercise ferments the humours, forces them into their proper channels, throws off redundancies, and helps nature in those distributions which are necessary for life.

That which agrees best. 1. IN general, that sort of exercise is best to which one has been accustomed, which best agrees, and in which people take delight.

2. EXERCISE is best when the stomach is most empty. It is to be estimated by the constitution.

On an empty stomach. When the patient begins to sweat, grow weary, or short breathed, he should forbear, till he recovers. For the delicate and infirm, that sort of exercise is most proper which is performed by external help, gestation in wheel carriages, horse-litters, sedan-chairs, sailing, &c. Julius Caesar was of a weak delicate constitution by nature, which he hardened by exercise. Plutarch says, he turned his very repose into action.

3. FOR

3. FOR such as are neither robust nor very tender, that sort of exercise is best which is performed partly by ourselves, partly by foreign assistance. Of this sort, *riding on horseback* is the foremost, for the benefits of which I beg leave to refer the reader to the judicious *Sydenham* and to *Fuller*.

Riding on horseback.

By riding the pendulous viscera are shaken, and gently rubbed against the surfaces of each other; mean while the external air rushes forcibly into the lungs. These conspiring produce surprising changes. *Sydenham* had such an opinion of *Riding*, that he believed not only lesser evils could be cured by it, but even the *Consumption* in its last stage. In this disease, he says, *Riding* is a specific as certain as mercury in the *Lues*, or bark in an *Ague*, but he cautions phthisics never to fatigue themselves by it. On this head he produces many instances of recovery. In long journeys, concussions often repeated have expelled obstructions which the waters had begun to dislodge.

—Those invalids who ride out in the summer, in the heat of the day, act irrationally. I would advise them to go to bed early, so that they may get up early, and ride before breakfast, and in the evening. In *Italy*, it is a common observation, that none but Englishmen and dogs are to be seen in the streets, in the forenoon, *Cane et Inglesi*.

Riding in the heat of the day irrational.

4. AFTER exercise, the body should be well rubbed, then dry linen should be put on well aired.

Linen to be changed.

5. AFTER exercise, every man ought to rest before he sits down to dinner. Cold small liquors after exercise are pernicious.

Cold liquors dangerous.

6. EVERY

6. EVERY author who has wrote well on the *Non-Naturals* in general, has copied from the divine old man. To Hippocrates are we indebted for most of the foregoing. *Hippocrates the best writer.* We now proceed to enumerate some

of his particular observations, to which we may add those of others, who have not copied from him.

7. Complaints which arise from immoderate labour are cured by rest, and e c.

In those who loiter away their lives in sloth, muscular motion languishes, the chyle is neither assimilated quickly, nor perfectly. Cachexy necessarily becomes the consequence. Let the best hunter stand still, he may soon plump up; but he will every day, become more and more unfit for the field. Of twins, let one apply himself to study; let the other inure himself to hunting. The former enjoys the health of a green-sick girl; the latter strings his nerves. The lazy rich envy the healthy poor; they would enjoy health, while they do nothing to preserve it.

“ Illi vero qui divitiis affluent, largis quotidie
 “ fruuntur epulis, nec se ad labores credunt na-
 “ tos, perpetuis querelis medicorum aures fati-
 “ gant, dum volunt vivere sani, et nihil agere.”

Boerhaavii Praecep. Academ. From no cause whatsoever, can health suffer more surely, than by exchanging a life of action for a life of indolence. Well, therefore, might Aretaeus (among the causes of cachexy) rank, *ab exercitationibus, quies; a laboribus, otium.* Well might Hippocrates say, *Labor siccatur, et corpus robustum efficit; otium humectat, et corpus reddit debile.* Baccius draws a parallel between the active lives of the antients, and the slothful lives of the moderns. “ Illorum
 “ vita assiduis dedita exercitiis, sanitatem conser-
 “ vabat,

“ vabat, et promptiores reddebat vires ad singula
 “ tam animi quam corporis munera. Hodie, c. c.
 “ in continuo otio degitur. Principes aut curis
 “ animi jugiter tenentur ; aut, si ad ludicra tran-
 “ fire soleant, ea inertia sunt *Tabellae, alcae, tro-
 “ chi* novus modus *super mensam agitati*. Unde,
 “ non mirum, qui praeproperam accelerant se-
 “ ne&tutem, incurvantque facile in *morbos renales*,
 “ aut in *podagram, haemicraniam*, aliosque id ge-
 “ nus affectus, medioque veluti cursu deficiant.”

8. If the body, or any of its members rest longer than usual, it will not *Laziness hurtful.* become the stronger. If, c. c. after a long habit of idleness, one enters immediately on hard labour, he will surely do himself hurt.

9. A soft bed is as irksome to him who is accustomed to a hard one, as a *Custom to be studied.* hard bed is to him who lies at home upon down.

10. Those who seldom use motion, are wearied with the smallest exercise, and e. c.

11. Friction is a sort of succedaneum to exercise. Experience dictates *Friction.* this to *Jockies*.

Friction is an alternate pressure and relaxation of the vessels. Gentle friction presses the veins only, harder the arteries. By pressing the veins the motion of the blood is accelerated towards the heart ; thus the actions of the heart are excited, the blood moves through the vessels. Vital power may be increased by friction alone to any degree. In the coldest hydroptic, a fever may be thus raised. In bodies where none of the chylo-poetic viscera perform their offices, wonderful effects may be produced by rubbing the belly with coarse woollen clothes. Thus have dropsies been cured. For prevention and cure the antients used

used frictions. Let a horse stand unrubbed for a few days, he becomes useless. Let him be well curry-combed, he may continue nimble for years. Columella strongly recommends this practice of currying in his *Re Rustica*. He says, *sæpe plus prodicit pressa manu subegisse terga, quam si largissime cibos præbeas.*

Frictions may be used for different purposes. Hence it was that Hippocrates (De Medici officio) says, *Friccio potest solvere, ligare, carne implere, minuere, dura ligare, mollia solvere, moderata densare.* The fibres may be relaxed by rubbing with oils. They may be braced by the use of gums, spirits, &c.

12. Reading aloud and singing warms the body. Hence it is, that Dr. Andry ^{Reading and singing.} thinks the reason why women stand not so much in need of exercise, because they are more talkative than the men.

13. THE foundation of chronical ailments are generally laid in that time of life which passes between puberty and manhood. Moderate exercise promotes secretions. Violent exercise is more injurious than none. Young men who follow shooting, hunting, and other rural exercises immoderately commit violence on nature, and anticipate old age. The animal functions are weakened, perspiration is interrupted, the fibres are rendered rigid, and the radical moisture is dried up. Those humours which ought to have passed by the skin, take possession of the glands, under the appearances of head-ach, heart burn, cholic, gripes, purging, belching, with all those evils which affect the hypochondriac. From rigidity of fibres, the morbific matter lodges in the joints in the form of rheumatism, ischiatica, nodes, tumours,

mours, chalk-stones, &c. The lymphatics pour their contents into the cavities of the body; hence, dropsy, asthma, with all the symptoms of cachexy.—Nature has supplied the fair sex with evacuations which supply the place of exercise. While nature maintains these discharges in a regular manner, their fibres continue lax, soft and delicate. When these discharges come to be suppressed, and women, notwithstanding, continue in health, they become viragos, their fibres partake of the masculine rigidity, they are subject to gout, rheumatism, and other diseases, consequences of immoderate exercise.—The fibres of children and eunuchs are also lax; these are therefore rarely subject to such disorders.

Galen condemns those who recommend exercise promiscuously. I have known some men (says he) who, if they abstained three days from exercise, were sure to be ill. Others I knew who enjoyed a good state of health though they used little or none.

1. " Primigenes of *Mitylene*, was obliged to go into a warm bath every day, otherwise he was seized with a fever. Effects we learn from experience, but the causes ^{Cases.} of those effects we learn from reason or reflection. Why did Primigenes require such frequent bathing? By the burning heat of his skin, I found that he wanted a free perspiration: I therefore ordered him a warm bath to soften his skin and open his pores."

2. " I knew another man whose temperament was equally hot, but he did not require such frequent bathing, because his calling obliged him to walk much about the city; he was moreover of a quarrelsome disposition; by fighting.

" fighting he kepted himself almost in a constant
" sweat."

3. " A third I used to restrain from exercise,
" because he used it to excess. — I have, e. c.
" cured several cold temperaments by rousing
" them from lazy lives, and persuading them to
" labour."

Exercise is not to be enjoined to patients when
they are very ill. It were dangerous thus to
jumble stagnating corrupted humours.

*dangerous in
cases.* Such mixtures stuff the lungs, not
without danger of suffocation. Thus
we see cacheetics, or leucophlegma-
ties pant for breath in mounting one
flight of stairs. In such cases gentle frictions are
only rational at first, then airing in a chair, rid-
ing, walking, and at last running.

Medical justice obliges me to mention one fla-
grant proof consistent with my own knowledge.

Cafe. Not many summers past, a gentleman
put himself under my care at Bristol-
Hot-wells. By jollity, good fellowship, and elec-
tioneering, he had almost got the better of one
of the best constitutions. His case, however,
was far from being desperate. My principal in-
junctions were Bristol-water, sobriety, and re-
pose. For some weeks he seemed to gain ground.
By riding in the heat of the day, and by living
too freely, he was taken with a cough and loss
of appetite. He was bled, and slept soundly
through the night. Next day I called with an
intention to repeat the bleeding; my patient was
officiously advised to Bath. By procrastinations,
and unseasonable journeys, the inflammation of
his lungs waxed worse; the season for evacuation
was lost. He became cachectic, and short-
breathed; his legs swelled. He had before been
subject

subject to the gout; these symptoms were therefore deemed gouty. Bath-water and exercise were unmercifully pursued. After every airing, he panted for breath, and seemed ready to expire. Nor was it any wonder; for, at that very time, *haerebat lateri lethalis arundo*. A *vomica pulmonum* soon burst, and suffocated the gouty man.

13. LET us now see what *Statical Experiments* have discovered.

By moderate exercise the body becomes lighter and more lively. — The body perspires more when it lies quiet in bed, than when it tosses and tumbles. If, after supper, one lies ten hours in bed, he will perspire freely all the time; but if he lies longer, both the sensible evacuations, and the insensible perspiration will be diminished.

— Violent exercise of body or mind brings on early age and premature death — Riding on horseback increases the perspiration of the parts above the waste. — An easy pace is much more wholesome than a hard one. But to the infirm who are fatigued by it, an easy carriage is preferable, because their strength should be recruited not exhausted. — Moderate dancing promotes perspiration, and is a wholesome exercise. When the perspiration is defective, the remedy is exercise. Dr. Arbuthnot recommends exercise from the common observation that the parts of the body which labour most are larger and stronger. Thus, the legs and feet of chairmen, the arms and hands of watermen and sailors, the backs and shoulders of porters, the limbs of running-footmen, by long use, grow strong, thick, and active.

“ By toil subdu’d, the warrior and the hind
“ Sleep fast and deep; their active functions soon
“ With

“ With generous streams the subtle tubes supply.
 “ The sons of indolence, with long repose
 “ Grow torpid ; and with slowest Lethe drunk,
 “ Feebly and lingringly return to life,
 “ Blunt ev’ry sense, and pow’rless ev’ry limb.”

§. IV. OF SLEEP.

SLEEP AND WAKEFULNESS bear a great affinity to exercise and rest. Different *Sleep.* constitutions require different measures of sleep.

1. Moderate sleep increases perspiration, promotes digestion, cherishes the body, and exhilarates the mind. *Moderate.*

2. Wakeful people should, nevertheless, keep in bed, quiet and warm, which will, in some measure, answer the purpose *Quiet.* of sleep.

3. Excessive sleep renders the body heavy and inactive, impairs the memory, and stupifies the senses. *Excessive sleep.*

4. Excessive wakefulness dissipates the strength, produces fevers, and wastes the body. *Wakefulness.*

5. He who sleeps through the day, and wakes through the night, inverts the order of nature, and anticipates old age. *Unseasonable sleep.*

6. Sleep after dinner is, in general, a bad custom. A late heavy supper is an enemy to sleep. Going to bed without any supper, prevents sleep.

7. By *Statistical Experiments* we know that sound sleep is refreshing.—That nocturnal perspiration arises in this climate to about sixteen ounces,—That after a good *Statistical proofs.*

good night's sleep, the body feels lighter from the increase of strength, as well as from the quantity of matter which it has thrown off by perspiration.—That restless nights diminish perspiration.—That perspiration is more obstructed by a cool southerly air when asleep, than by intense cold when awake.—That change of bed diminishes perspiration; for things to which we are not accustomed, though better in their nature, seldom agree with us.—That stretching and yawning promote perspiration.—That perspiration is more obstructed by throwing off the blankets when we sleep, than by throwing off the cloaths when awake.—That wine moderately drank induces sleep, and increases perspiration.—That drank to excess it lessens both.

“ IN study some protract the silent hour,
 “ Which others consecrate to mirth and wine;
 “ And sleep till noon, and hardly live till night.
 “ But surely this redeems not from the shades
 “ One hour of life.

§. V. OF EVACUATION.

DIODORUS SICULUS informs us that the Aegyptian physicians were maintained at the public expence, and obliged, by the laws, to conform their practice to rules recorded by authority. To prevent distempers (says he) they prescribed *glysters*, *purges*, *vomits*, or *fasting*, every second, third, or fourth day. Herodotus informs us, that the Aegyptians vomit and purge thrice every month, with a view to preserve health, which, in their opinion, is chiefly injured by superfluity of aliment. *Euterpe, sect. 77.*

*Evacuation
in general.*

At

At water-drinking-places the word *preparation* fills the mouth of every nurse. Some are over-prepared before they come. Others prepare themselves. Bleeding, purging, and vomiting, are edge-tools. I therefore proceed to point out the uses and abuses of *Evacuation*.

I. Of Bleeding.

1. GREAT are the advantages produced by a seasonable use of the *Lancet*. Unseasonable bleeding is productive of irreparable calamities. One may venture to affirm that full as many of *His most Christian Majesty's* subjects fall by the lancet, as by the sword. The soberest people in the world are doctored in the antiphlogistic regimen, a regimen calculated for the carnivorous, lazy, and drunken. Following the physician of the *Hotel-Dieu*, one day in his rounds, he met a patient just carried in. The doctor demanded of the porters, *Qu'as-t-il?* one of them answered, *La fièvre*. *As-t-il été saignée?* *Oui, Monsieur, dix fois. Diable! Dix fois, et pas encore guerit.* *Saigné le encore.* All this without touching his pulse, or asking one other question. The wretch was bled, and expired before his arm could be tied up.

2. Of all nations, French surgeons are, in general, the most dexterous operators, dressers, and dissectors, and the worst practitioners.

Mr. Thomas, Surgeon of the naval hospital in India, assured me that (in Admiral Pocock's first engagement with the French) the British wounded who were brought ashore, recovered to a man, while the French wounded who were carried into Pondicherry almost all died. The surgeon of the Bridgewater

Bridgewater ship of war was then a prisoner in that fort, and was witness to the fact, nay the French own the secret, and still continue to be surprised at the consequences of their own mal-practice.—Mr. Morgan, Surgeon of a regiment at *Guadaloupe*, assures me that *bleeding* is the universal remedy among the French practitioners in that island. In *intermittent fevers* particularly, they bleed five or six times, and always in the cold fit. Many of our officers and private men thus expired, before their arms could be bound up. Moliere's raillery has improved the French practice not a little.

3. Our best surgeons surpass the French in learning. We have philosophers as well as operators. I know not a few whose medical visits I would accept in cases the most dangerous.

Common
bleeders igna-
rant.

“ Sydenham attended a lady of a delicate constitution, who (by violent floodings after child-birth) fell into convulsions. He prescribed food of easy digestion, and trusted to time for a cure. He visited her daily, and saw his prognostic verified by the mitigations of the symptoms. Her nurse mistaking honesty for ignorance, and wondering that he never wrote, privily introduced a surgeon, who made use of the common instrument for promoting the *Lochia*, the lancet. Her convulsions returned, she died. The Doctor, calling at his usual hour, found her husband in tears. Surprized, he demanded the reason. The maid answered, Sir, my lady is dead. Then she must have been bled, replied the Doctor, rushing into the bed-chamber. He examined both arms; no print of a lancet. He then examined her ankle.

Example fa-
tal.

O

“ There

“ There he found the fatal mark. Provoked at
 “ the disappointment, he bluntly told the hus-
 “ band, whom he met on the stairs; Sir, they
 “ have killed your wife.”—From the untimely
 fate of this lady, he warns physicians to order
 innocent nothings to amuse meddling gossips,
 and divert them from quacking under hand.

Public rooms are crowded with hundreds, some well, others labouring of inveterate ailments. Animal effluvia are exalted by the addition of smoke, sulphur, wax, and tallow. The external air is lifted out at every chink. Is it any wonder that weak enervated people should be overcome by such air?

Many may remember the fate of Mrs. Shifnen. Playing at *Quadrille*, she had the good fortune to Examples. win a *sans-prendre*. Transported with joy, she fell into a laughing fit, and then into an hysterick. She was bled; convulsions ensued, and she expired. Nor was the consequence wonderful; she was a woman of a weakly constitution, pale complexion, and subject to an habitual lax.

Captain Roper, was one night hauled into an outer-room in a fainting fit; a surgeon was sent for. I ordered the waiter to call his physician, who saved his patient with hartshorn, and thanked me. The gentleman then laboured of an incurable jaundice, dropsy, and cachexy.

Many may remember the case of Mr. S——n. While he held the cards in his hands, he was almost every night, taken with a slight epileptic fit. I almost affronted a *Right Reverend* by opposing his being bled. He had a glass of cold water with spirit of hartshorn. In an instant he recovered, begged of the company, that they would not

not be alarmed on his account, took up his cards, and played on.

The Surgeons were so often summoned on old *Nash's* account, that at length they made no haste. Was it any wonder that the blood should now and then be interrupted in vessels which had lasted for fourscore years and upwards? To drive away care he latterly indulged himself in drams, which alarmed people by bringing on drunkenness, or a temporary apoplexy.

4. Surgeons may boldly venture on the sanguine, robust, and plethoric. *Cautions.*

The patients who resort to Bath-waters labour generally of stomach disorders, gout, rheumatism, or palsy; these are seldom attended with fever. In other respects they are what they call hearty. Such generally admit of evacuations.

Those who resort to Bristol-waters are, for the most part, emaciated, phlegmatic, hectic, pale, lax, and weak. Bleeding, in general, increases such disorders.

Suffice here in general to observe, that in *Consumptions* attended with inflammation, bleeding not only abates that, but, by drawing off the diseased juices, makes room for sounder. But, in consumptions glandular, or pituitous, every lancet is a dagger. If, on trial, the pulse grows quicker, more contracted or thready; if the blood appears looser in texture, no benefit is to be expected from bleeding. If, in such circumstances, a vein is opened, colliquation, coldness, depression, and irrecoverable weakness ensue. The assimilating powers are low; there often remains no more than what is barely sufficient to maintain the vital flame. When the circulation comes to be confined within a narrow compass, patients feel themselves as it were smothered. Bed-curtains.

tains and windows are thrown open for air. Air aggravates, while it seems to relieve. In such cases it is hard to resist the importunities of the sick; I have ordered little bleedings which gave ease, and, as I fancied, hastened the poor creatures to their journey's end. Anxious to relieve, I have taken away blood which vainly I wished to restore. The symptoms which, in consumptions call for bleeding, require the nicest judgment. How precarious then must be the fate of those who come to St. *Vincent's Well* armed with general directions?

5. To enumerate every circumstance in which *Bleeding* were hurtful, would swell my work to too great a size. In acute diseases, it is commonly believed that the blood loses its phlogistic nature the fourth day; in malignant putrid diseases, it is taken for granted that the blood is always dissolved. To convince the reader that bleeding is not so well understood as is commonly imagined, I refer to some experiments made by De Haen on the human blood, *page 193, 342, &c.*

The vulgar method of judging of blood is by its crust. The crust depends on the nature of

*Judging
blood by the
crust fallaci-
ously.*

the vessel in which it is received. Let blood be received into a flat broad vessel, it forms little or no crust. Let it be received into a narrow deep vessel,

the crust appears thick, fizzy, and inflammatory. Let blood fall directly into a basin, it generally puts on a white inflammatory crust. Let the most inflammatory blood be squeezed out of the orifice, or trickle down the arm, it puts on no white inflammatory crust.—In acute diseases he found a deep inflammatory crust, in many instances, long after the fourth day. In a young

woman labouring of a continual putrid fever, full of spots, where nothing had been done, our author found the blood drawn on the eleventh day, covered with a phlogistic crust, and compact in the red part. The blood that was drawn on the twelfth day was still more compact, and more incrusted. Crudity of humours is not to be estimated by time, but by the condition of the blood. Boerhaave's texts are therefore to be considered, *cum grano salis*. Siziness and dissolution of blood depend on causes which puzzle the most intelligent.

Of Purging.

MEDICINES, if they do not good, certainly do harm. Hippocrates observes, “ That it is dangerous suddenly to alter settled habits ; or to fly from one extreme to another.” *Semel multum aut repente vel evacuare, vel calefacere, vel refrigerare, aut alio quovis modo mouere periculosem.* Celsus damns the custom of frequent purgation. *Sed purgationes quoque, ut interdim necessariae, sic, ubi frequentur, periculum afferunt. Affuecit enim non ali corpus, et, ob hoc infirmum erit.* Lib. i. cap. 3. p. 31. This we see every day verified in those who, solicitous about the prevention of diseases, consume their present stock of health in quacking, as Celsus elegantly expresses it, *In secunda valetudine, adversae praefidia consumunt.* Certain it is, that nature may be so far misled, that the body may forget the calls of nature. Evacuations give rise to cachexies, or bring the best constitutions to be susceptible of every trifling liberty.

*Purging leads
nature astray.*

PURGING withdraws that matter which nature endeavours to fix on the extremities, and fixes it on the viscera. The patient exchanges *Purgings weakens nature.* pain, that necessary instrument of nature, for sickness, nausea, gripings, faintings, and a numerous train of irregular symptoms.

Sydenham assures us, that he learned, at his own peril, as well as that of others, that *Purgatives* exhibited in the fit, in the declension, or in the interval of the gout, have hastened those evils which they were intended to prevent. Purges, as they rob the blood of its spirituous part, so they weaken concoction, deceive the sick with fruitless hopes, and bring on, lasting mischiefs which nature undisturbed would have subdued. Gouty people are easily disturbed by any cause that agitates the body, or mind. For this reason the gout follows the slightest evacuation.

a. I knew a practitioner, who scorning Sydenham and all his cautions, had no notion of being confined by the gout, or *Examples.* any disease which purges could carry off. This man was a true believer, he took the same measure to himself that he gave to others. Whenever he was attacked with the gout he took his purges, and was about again in a few days. Nature thus debilitated, the gouty matter fell at last on his lungs, and killed him.

β. " A gentleman of *Essex* had for many years been subject to violent fits of the gout. In one of these, wishing for relief or death, he applied to the former, who purged him every four hours with *Gum Guajac* draughts, to the amount of two hundred stools in ten days. He hobbled into the coffee - house, and sounded this

this doctor's praise. The consequence was, his fits return oftener, and with greater severity. He now curses his own imprudence, and the doctor's memory.

Mr. Peregrine Palmer, Esquire, Representative in Parliament for the University of Oxford, was known for an obstinate lameness, as well as for that integrity of heart, and politeness of manners which distinguished his character. From his parents he inherited the gout, and had his fits early in life. When he seemed to be threatened with a fit, and wanted to indulge any youthful pursuit, he told me, he used to avert it by purging, a folly to which he imputed his lameness, and which he requested me to publish, as memento to his gouty brethren.

DIFFERENT DISEASES, ages, constitutions and sexes require different purges necessary.

Resinous, mercurial or rough purges, cause heat, and hinder the passing of the waters by reason of that stricture which purgatives of all sorts leave behind. They destroy the tone also of the stomach and intestines.

Where the guts are clogged with viscid phlegm, mineral waters purge at first, even those which are astringent, particularly if they are drank in large quantities and quick.

For the purposes of opening the mouths of the bilious vessels, and thereby giving access to medicated fluids, what can be so natural as salts extracted from waters themselves?

Epsom-salt, or *Sal Catharticum amarum* is prepared from bittern, and is now common. Dr. Hoy was the first who discovered the way of preparing it, (vide *Philos. Transact.* No. 378, &c.)

For purifying and imitating it, see *Histoire de l'Academ. Ann. 1718. p. 38, &c.*

Glauber's Salt is an artificial composition, an union of the vitriolic acid with the mineral alkalii, or basis of sea-salt. It has some resemblance with that of Epsom, and proves, when the point of saturation is exactly hit, a salt of a neutral nature, of a bitter taste, and a purgative virtue. Artificial salts require four times their weight of water to dissolve them. Natural salts dissolve in about an equal quantity of water.

Rochelle salt, or *Regenerated Tartar*, has a more agreeable taste, and a gentler purgative virtue than either of the former.

Magnesia Alba, or white *Manganese*, is that alkaline matter obtained by evaporating and calcining the remains of the mother liquor left in refining *Salt Petre*, which will not shoot into salt. This white Manganese is an agreeable gentle purgative, particularly proper in habits naturally costive, and hypochondriac disorders. Its purgative quality seems to proceed from its alkaline earthy matter dissolved by the sharpness of the juices in the first passages. The universal acid of the waters converts this medicine into a neutral salt, which exerts its purging quality on the same principles by which the Epsom salts are known to act. Hoffman, Stahl, and all the best foreign mineral water doctors recommend the four for quickening the effects of the waters, so as to render them more deobstruent, detergent, and purgative.

Of Vomiting.

Vomiting, its operations. IN the action of *Vomiting*, the diaphragm is suddenly and violently drawn downwards, while the abdominal muscles con-

contracted also, press the contents of the lower belly. Thus the stomach is squeezed, as it were, between two presses. As the nerves distributed to the stomach, intestines and mesentery, have such power over the rest of the nerves of the body, we need not wonder that convulsions should be excited in the muscles of the face, oesophagus, intestines, &c. In the action of vomiting, the venous blood is driven violently towards the right side of the heart, while those arteries which are dispersed over the abdominal viscera are compressed. Thus, the impetus of the arterial blood is forced upwards, while the right side of the heart is hindered from emptying itself into the vessels of the lungs, respiration being stopped in the act of vomiting; hence the return of the venous blood from the head is prevented. The vessels of the head are in danger from turgescency, or extravasation; for, in violent straining, the face reddens, the jugular veins swell, the eyes sparkle with fire, the ears tingle, and the head becomes giddy.

In the action of vomiting, the venous blood rushes through the *Vena portarum* into the liver. If the liver or lungs happen to be vitiated, ruptures, and other fatal consequences may insue. “ Boerhaave (in his academical ^{Dangerse} *prelections*) says, he saw a woman labouring under an inveterate jaundice, by taking a vomit, fell into a superpurgation of putrid matter first, and then of pure blood, which carried her off. —Had I not, with my own eyes, have seen it in the body of the Republic’s President of the *Marine*, who could have thought that the tube of the oesophagus was burst by violent strainings?” —Hernias have often been produced

duced by vomiting.—After violent vomiting, the site of the stomach, and other abdominal viscera was found strangely changed in the carcass of a woman, as we find pag. 238, *Memoirs de l'Acad. des Sciences l'an. 1716*—With justice does Celsus (lib. i. cap. 3. p. 29.) condemn those gluttons who prepare their stomachs for feasts by vomits. *Itaque istud luxuriae causa fieri non oportere fateor, interdum valetudinis causa recte fieri, experimentis credo. Commoveo tamen ne quis, qui valere & senescere volet, hoc quotidianum habeat.*

Hence we may see the danger of vomiting to plethorics, or to those of bad habits. In spasmodic reachings, artificial irritations teem with destruction. How judiciously does Sydenham advise vaenesection to precede vomiting, in cases which require both; lest (by violent strainings) the pulmonic vessels should be burst, or the brain hurt; examples of which he says he has seen. *Sett. i. cap. 4. p. 65.*

While I was studying at *Paris*, I well remember the untimely fate of a fellow-student, Dr.

Example. Hugh Graham. In very hot weather (by posting) we were both heated. By fasting and diluting, my complaints vanished in a few days. He was feverish, with a nausea, for which he proposed a puke, which I opposed, begging he would rather bleed. Laughing at my fears, he took only one scruple of *Ipecacuan-a*, which vomited not immoderately. Next day he complained of a dull pain in the right hypochondre, for which I bled him, and would have repeated it, as my mind laboured with a presentiment of danger. Some few days were trifled away in doing nothing. My anxiety forced the Doctors *Du Moulin* and *Astruc* on my friend. I related my fears to them; I dreaded an abscess

abscess in the liver. I told them I feared the season was lost. Their answer was, *C'est impossible, Monsieur, vous craignez trop pour Monsieur votre ami, tout va bien.* In spite of saignees, purges, lavemens, &c. the patient shut his eyes. Insisting still on my prognostic, I begged their presence next day. Before I touched the body, I prognosticated an abscess in the concave part of the liver. When I had laid the abdominal viscera in view, the gibbous part was found. Putting my hand under the liver to turn it, I felt it uncommonly moist. From my wrist to my fingers ends, it was covered with bland well concocted pus. Old *Du Moulin* hobbled across the room, and clasping me in his arms, called out, *Ma foi, Monsieur, vous avez faites un tres bon prognostic.* The truth was, I watched every groan, I attended him night and day, I read for him, I thought for him, I loved him, and, though I could not save him, by his untimely fate, I was taught three useful lessons, 1. That vomits are to be administered only where they are necessary. 2. That inflammations of the liver run speedily to pus; and, 3. That bleeding avails not where abscesses are once formed. These three lessons have enabled me to save others.

VOMITS warm and strengthen particular members, by deriving a greater supply of blood and spirits to the part. By repeated succussions vomits, resolve impacted matter. On this principle it is that sea-
voyages remove tumors, and topical inflammations; thus it is that rebellious ulcers are rendered tractable, haemorrhages and fluxes stopped, as have been dropfies. Of the last there are two memorable instances.

Vomits, their effects.

Dr.

Doctor Ross, late physician of London, was once tapped for a dropsy. His abdomen filled again. The day was fixed for the second tapping. A vomiting of coffee-like water came on spontaneously, and continued, at different ~~times~~, till he was emptied. Nor did he fill again. This relation I had from his own mouth.

The second volume of the *London Medical Essays* contains a more memorable instance, communicated by Doctor Alexander Mackenzie.

Where the viscera are sound, where the blood vessels have been duly emptied, where pains ^{Vomits safe.} and reachings arise from viscid phlegm, bilious putrid, or acrid juices, vomits seem to be preparatives more natural than purgatives. Lord Palmerston's case, related by Dr. Oliver, proves the text.

Dr. Woodward, of *Gresham-College*, seems to have been an enthusiast in the doctrine of vomits. He has furnished the public with many successful proofs. Of his unsuccessful he says nothing.

Preparation seems still more necessary, in regard to *bathing*, *sweating*, and *pumping*. Of these I treat particularly, in my *Attempt to revive the Doctrine of Bathing*.

Of Sweating.

SWEATING is practised in all stages of diseases. Sweating is as dangerous as any one ^{Sweating.} evacuation. In those diseases which frequent *Bath*, sweating is commonly practised in bathing; and, where it is easily produced, seldom does mischief. Excepting *Diabetes*, sweating is hardly compatible with those diseases

diseases which frequent *Bristol*. *Coeta non cruda sunt evacuanda* is an aphorism founded in truth. He who knows the difference between humours crude and concocted, is alone a judge when sweats are to be prescribed.

§. VI. OF THE PASSIONS.

1. To maintain health, the *Passions* must be kept under subjection. Let a man be never so temperate, and regular in his exercise ; yet if he is led away by passion, all his irregularity will avail but little.

*Passions to be
kept under
subjection.*

2. Fear, grief, envy, hatred, malice, revenge and despair weaken the nerves, retard the circulation, hinder perspiration, impair digestion, and produce spasms, obstructions, and hypochondriacal disorders. Valerius Maximus gives fatal instances of terror. Violent anger creates bilious, inflammatory, convulsive, and apoplectic disorders, especially in hot temperaments. Pliny and Aulus Gellius give us fatal instances of extreme joy. Sylla having freed *Italy* from civil wars, returned to Rome. He said, he could not sleep the first night, his soul being transported with excessive joy and content, as with a strong and mighty wind.

Their effects.

3. In that journal of Mr. Ives, Surgeon of the *Dragon* ship of war, recorded in Dr. Lind's book of the scurvy, we find a memorable instance of the effects of opposite passions. On the thirtieth day of January 1743, this gentleman had ninety men on his sick list, almost all scorbutics, fifty-five of which seemed, to him, out of the power of medicine. News came on board, that the *Spaniards* were to

Examples.

push

push out of *Toulon Harbour* to join the *French*, in order to give battle to the fleet. Every eye sparkled with joy. So fast did the hopeless sick recover, that, on the eleventh of February, the day of action, there were only four or five of the ninety who could be with-held from their fighting quarters. From the eleventh to the fifteenth, the effects of joy continued; the *Dragon's* had all done their duty that day; few or none took notice of their illness. Every day brought on board fresh tidings of the scandalous behaviour of some ship or other. Those whom glory and the hopes of conquest had almost cured, relapsed. Before the end of the month, the sick-list was as deep as ever.

It is remarkable, in battle, the wounded horses follow their regiments, after having lost their riders; on three legs they neigh for joy at the sound of the clarrion.

In weathering *Cape-Horn*, the *Centurion's* crew was so dispirited by distress, that one half of the men died. While the same ship cruized for the *Aquapulco ship*, golden dreams supported the men's spirits, for full four months she was remarkably healthy.

In that long storm in which the *Ipswich* ship of war lost her rudder, &c. fear and despondency seized the sailors to such a degree, that they rather chose to perish by inches below, than to get upon deck to extricate themselves from danger.

Those who brood over cares are the first attacked by putrid diseases, and the hardest to cure. Nor do wounds suppurate kindly. The hopes of ending their days among their native barren rocks make the *Switzers* fight under any banner.—The *Royal Highlanders* have, from their institution, been.

been real volunteers ; many of them have fallen by the sword ; in other respects, they are remarkably healthy. New corps of *Highlanders* have since been raised ; old men have been cozened from their families, and boys from their mothers laps. No sooner were they wafted to distant shores, than they began to pine away. Men accustomed to cold, hunger and fatigue, fell martyrs to the *maladie de pais*.—Africans transported to the colonies, no sooner cast their eyes on the hated shores, than they refuse sustenance, and often plunge into the main from a notion that their departed spirits regain their liberty.—Can drugs reach the seats of such diseases ? What can medicines avail to love-sick minds ? Wounded spirits who can bear ?

4. Moderate joy, virtue, contentment, hope, and courage invigorate the nerves, accelerate the fluids, promote perspiration, and assist digestion. Lord Verulam observes that *Moderate passions healthy.* cheerfulness of spirit is particularly useful when we sit down to meals, or go to rest. “ If any violent passion should surprize us at these seasons, it would be prudent to defer eating, or going to bed until the mind recovers its wonted tranquility.”

5. It is observable that the perspiration is larger from any vehement passion of the mind when the body is quiet, than from the strongest bodily exercise when the mind is composed. Hence we infer, that those who are prone to anger, cannot bear much exercise, because the exuberant perspiration of both might waste too fast. It is also remarkable that disorders which arise from vehement agitations of the mind, are more stubborn than those which arise from violent exercise ; because

*The passions
are ought to
be quiet.*

because the latter are cured by rest and sleep, which have no influence on the former. People who cannot bear losing, should never play.

“ THERE is, they say, (and I believe there is)
“ A spark within us of immortal fire,
“ That animates and moulds the grosser frame ;
“ And when the body sinks, escapes to heaven,
“ Its native seat, and mixes with the Gods.
“ Meanwhile this heavenly particle pervades :
“ The mortal elements in every nerve
“ It thrills with pleasure, or grows mad with pain,
“ And, in its secret conclave, as it feels
“ The body’s woes and joys, this ruling power
“ Wields at its will the dull material world,
“ And is the body’s health or malady.”

F I N I S.







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